Tab Three
DRAFT: SR 520 Bridge Replacement and HOV Project

What is the purpose and need of the project?

What is the function and role of the SR 520 corridor?

As noted in the background section of this notebook, the Trans-Lake Washington Study was initiated in the late 1990s to address traffic congestion in the SR 520 corridor. As any traveler who has tried to cross the Evergreen Point Bridge during rush hour is well aware, traffic demand in both directions exceeds capacity—meaning that more drivers want to use the highway than can physically pass across it during a given time period.

Many factors have contributed to traffic problems on SR 520. By far, the most important factor is the project area's pattern of population and employment growth since the highway opened in 1963. The new Lake Washington crossing enabled many more people to live in Eastside cities and towns and work in Seattle, creating a surge of vehicles traveling westbound across the Evergreen Point Bridge in the morning and eastbound in the evening. Eventually, some of these Eastside cities and towns developed their own commercial centers, with substantial concentrations of jobs creating a reversed travel pattern. Today, seven times more vehicles cross SR 520 each day than when the bridge first opened in 1963, and the numbers of eastbound and westbound vehicles on SR 520 during both the morning and evening rush hours are virtually the same.

Beyond the sheer number of people and cars, another important factor causing today's congestion is the narrow design of the Evergreen Point Bridge itself. Because the facility lacks shoulders, a vehicle that breaks down or is involved in an accident has no viable emergency shoulder refuge. This immediately makes a full lane of traffic unusable, slows the remaining lane as vehicles merge into the only available lane, and makes it difficult for emergency vehicles to render aid.

Another congestion-causing factor is the termination of the westbound HOV lane, just east of the bridge. The lack of a continuous HOV lane

significantly reduces transit and HOV reliability, which creates a disincentive to carpool or take the bus.

Together, growth and capacity limitations will make future traffic congestion on SR 520 much worse. Under free-flow conditions today, a vehicle traveling on SR 520 at the speed limit takes approximately eight minutes to drive from I-5 to the 124th Avenue Northeast exit. During the peak traffic period today, this trip takes an average of 13 minutes in either direction for a single-occupancy vehicle, or about 50 percent longer than it would if there were no congestion. But this delay seems minor when compared with the 27 minutes the same trip is predicted to take in 2030—more than double the time it takes today, and more than triple the time it would take without any congestion. With the westbound HOV lane on the Eastside, buses and carpools would fare better, but their travel times would also double from the current average of 11 minutes to 23 minutes in 2030.

This level of congestion is not just an inconvenience for drivers; it also affects local communities and the regional economy. Delaying the movement of goods and services hinders business growth and creates disincentives for businesses to locate in the region. Traffic congestion fills the air with pollutants from idling vehicles, which operate much less efficiently than vehicles traveling at higher speeds. Ultimately, congestion affects the quality of life for everyone who lives, works, and travels along the SR 520 corridor.

What is the need for the project?

Perhaps even more compelling than SR 520's gridlocked traffic, is the danger of its catastrophic failure. Over the last several years, WSDOT studies revealed that the aging spans of the Portage Bay Bridge and the fixed approach sections of the Evergreen Point Bridge are highly vulnerable to earthquakes. Studies also show that the floating portion of the Evergreen Point Bridge is vulnerable to windstorms. In 1999, WSDOT estimated the remaining service life of the floating portion of the Evergreen Point Bridge to be approximately 20 to 25 years, based on its structural condition and the likelihood of severe windstorms. SR 520 vulnerabilities are illustrated in Exhibit 3-1.

The floating bridge span was originally designed for sustained wind speeds that have since been exceeded on many occasions. In 1999, WSDOT rehabilitated the bridge to allow it to withstand sustained winds up to 77 mph. However, this still falls well short of WSDOT's current design standard of 92 mph, and some bridge mechanisms have been damaged in recent storms. In addition, the added weight of past strengthening means that the existing pontoons currently sit about one foot

lower in the water than they were originally designed to, increasing the likelihood of waves submerging the bridge deck. It is a virtual certainty that the bridge will sustain serious structural damage over the next 20 years. To bring the Evergreen Point Bridge up to current design standards, the existing span must be completely replaced.

The ever-present possibility of an earthquake in the Seattle area poses additional risks to the fixed portions of SR 520. The structures over Portage Bay and the approaches of the Evergreen Point Bridge do not meet current seismic design standards. The western approach structures are supported on hollow-core columns that are difficult and costly to

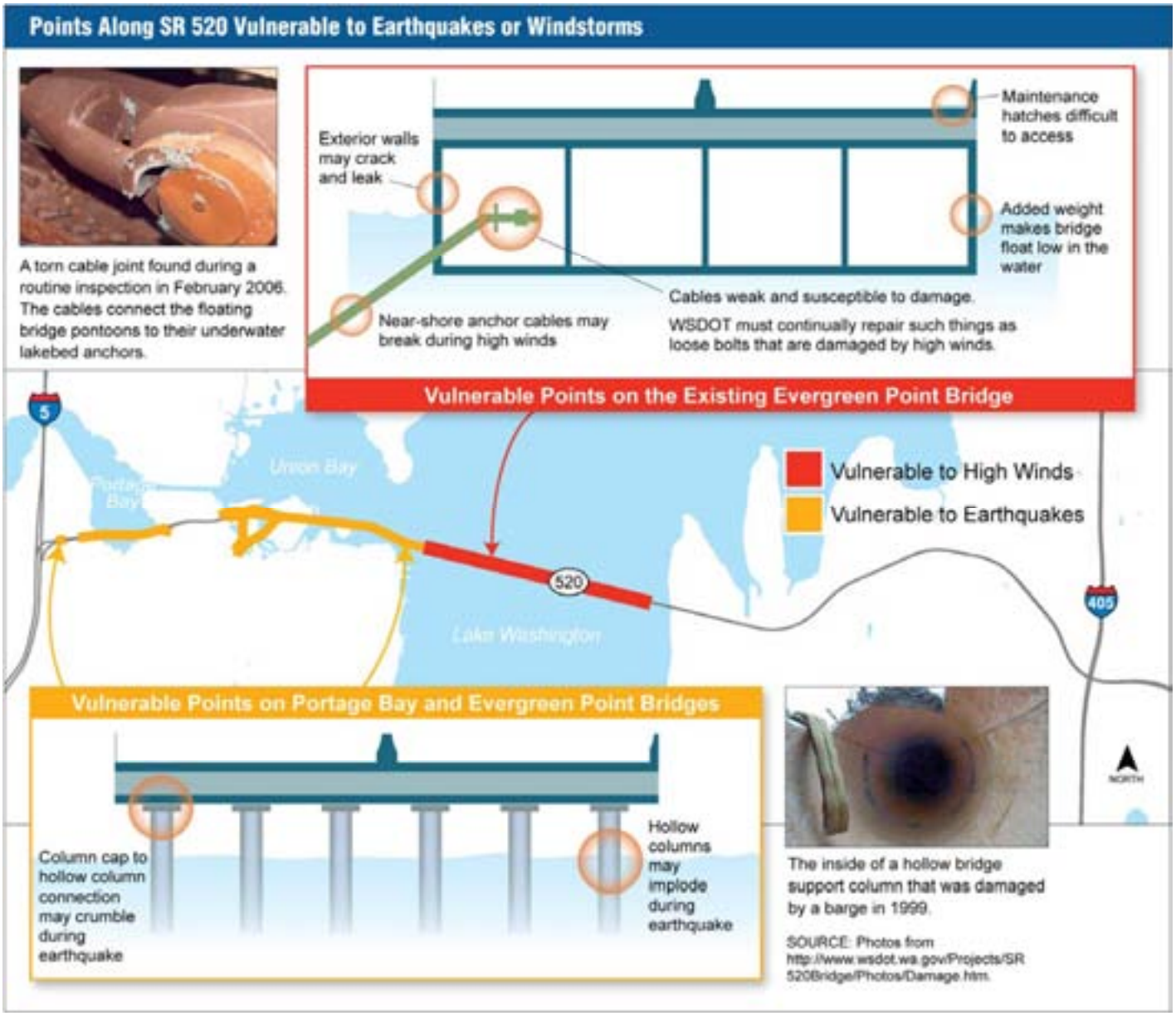

Exhibit 3-1. SR 520 Vulnerabilities

effectively retrofit to current seismic standards. Ramps at Lake Washington Boulevard and the 10th Avenue East bridge over SR 520 are seismically vulnerable. The floating bridge is also susceptible to earthquakes because it was designed without seismic considerations, as was common practice until the 1980s. WSDOT estimates that over the next 50 years, there is a 20 percent chance of serious damage to the bridge and these ramps in an earthquake.

Clearly, the predicted growth of traffic on SR 520 and the high likelihood of serious damage within the next 20 years are compelling reasons for a modern, reliable replacement that meets today's design standards. Although construction of the project would have minor, short-term effects on the region, the long-term cost of not building a replacement would be staggering. Without the bridge, there would be intolerable traffic congestion, regional economic losses, and reduced quality of life in adjacent neighborhoods. Above all, the region would be faced with the ever-present likelihood that high winds or an earthquake could suddenly cripple the SR 520 bridges, with potential consequences ranging from intense regional traffic disruption to injury and loss of life.

For over 40 years, SR 520 has been a vital artery in the Puget Sound region's transportation system. Building a safe, reliable, well-designed bridge now will allow the region to avoid the disastrous prospect of losing the existing bridges to an act of nature—a moment that will inevitably come if they are not replaced. For this project, unlike many others, the No Build Alternative is not a viable choice.

What is the purpose of the project?

The Trans-Lake Washington Study Committee developed the following goals for the SR 520 Bridge Replacement and HOV Project (SR 520 Project). The co-lead agencies and project committees have endorsed these goals:

- Improve safety and reliability
- Increase mobility for people and goods
- Avoid, minimize, and/or mitigate project effects on neighborhoods and the environment

These goals have been developed into the following statement of purpose:

The purpose of the project is to improve mobility for people and goods across Lake Washington within the SR 520 corridor from Seattle to Redmond in a manner that is safe, reliable, and cost-effective while avoiding, minimizing, and/or mitigating impacts on the affected neighborhoods and the environment.

The statement of purpose helped the project team screen the concepts originally suggested by the Trans-Lake Committee, leading to the development and evaluation of two build alternatives as part of the environmental impact statement (EIS) process. The project team has explored additional alternatives over the life of the project that have been eliminated from further consideration, including an 8-Lane Alternative and submerged tubes. A summary of these concepts is provided later in this document under the section "What alternatives have been rejected – and why?"

What alternatives are being considered in the EIS?

The SR 520 Project's Draft EIS evaluates two build alternatives in addition to the No-Build Alternative: the 4-Lane Alternative and the 6-Lane Alternative. The 4-Lane Alternative would replace the existing roadway and bridges with new facilities that would have four general purpose lanes, like today's facility, but would include wider shoulders and a partial HOV lane on the Eastside. The 6-Lane Alternative would add a continuous HOV lane in each direction and would include landscaped lids over SR 520 to reconnect neighborhoods that are now separated by the highway. WSDOT is also evaluating several design options for the 6-Lane Alternative that reduce the width of the corridor, improve mobility, and/or reduce neighborhood effects. The 4-Lane Alternative and 6-Lane Alternative and options are evaluated in the Draft EIS.

Both alternatives assume electronic tolling collection and would include the following improvements:

- Construction of sound walls along much of SR 520 in Seattle and on the Eastside (to reduce traffic noise on adjacent properties)
- Construction of a regional bicycle/pedestrian path along the north side of SR 520 through the Montlake neighborhood in Seattle, across the Evergreen Point Bridge, crossing to run along the south side of SR 520 through the Eastside to just east of 96th Street Northeast
- Removal of the existing Lake Washington Boulevard ramps and the ramps from the never completed R.H. Thomson Expressway
- A new bridge operations facility for SR 520, built into the east approach structure abutment on the east shore of Lake Washington
- New stormwater treatment facilities, including wet vaults and stormwater treatment wetlands
- A flexible transportation plan to provide alternatives to single occupancy vehicle trips

WSDOT also explored the feasibility of an 8-Lane Alternative and looked at traffic operations under several different roadway configuration and tolling scenarios. Analyses showed that the roadway network outside the SR 520 corridor limits the effectiveness of the 8-Lane Alternative on both sides of the lake. Without other major roadway improvements to I-5, I-405, and the supporting local street networks both in Seattle and on the Eastside, the 8-Lane Alternative would result in unused capacity on the bridge and would create areas of acute congestion both east and west of the bridge. Additional details about this alternative are provided later in this document.

The Draft EIS includes a summary of the analyses conducted; however, the 8-Lane Alternative is not fully evaluated in the document. The Draft EIS will be released later this summer. The preferred alternative will be selected following issuance of the Draft EIS and receipt of public comment.

What is the definition of the 4-Lane Alternative?

The 4-Lane Alternative would rebuild SR 520 from I-5 to Bellevue Way with two 12-foot general purpose lanes in each direction, the same number of lanes as today. A cross section of the 4-Lane Alternative is shown in Exhibit 3-2. The existing westbound HOV lane on the Eastside, between Bellevue Way and the Evergreen Point Bridge would also be rebuilt under this alternative. The HOV lane would not be carried across the bridge, so its western end would continue to create a bottleneck for westbound traffic, as it does today. WSDOT would replace both the Evergreen Point and Portage Bay bridges and rebuild all the bridges that carry local streets over SR 520. Pontoons to support the Evergreen Point Bridge would be sized to carry future high-capacity transit. Roadway shoulders would be constructed to current design standards which, for a four lane roadway, require a 4-foot wide inside shoulder and a 10-foot wide outside shoulder. Freeway transit stops would be reconstructed on the outside of the highway at Montlake Boulevard, Evergreen Point Road and 92nd Avenue Northeast

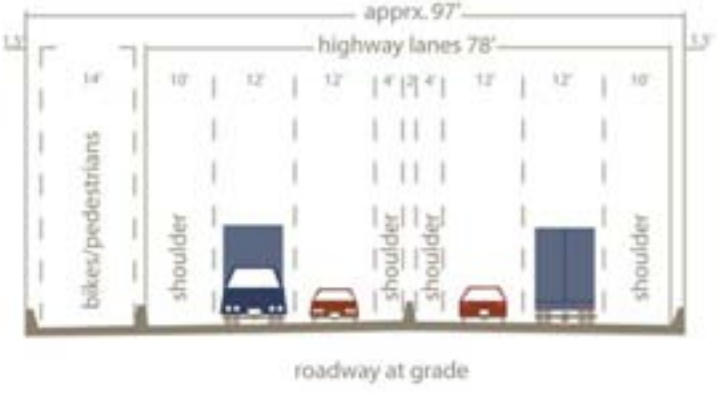

Exhibit 3-2. 4-Lane Alternative Roadway Cross Section

The 4-Lane Alternative provides some improvement in traffic flow and reliability because it includes adequate shoulders, however it does not add vehicle-carrying capacity. The *Draft EIS, Appendix A: Description of Alternatives and Construction Techniques Discipline*

Report, contains more detailed information on the configuration and footprint of the 4-Lane Alternative.

What are the transportation components of the 4-Lane Alternative?

Exhibit 3-3 illustrates the 4-Lane Alternative from I-5 to Portage Bay. Exhibit 3-4 illustrates the 4-Lane Alternative from Portage Bay to Lake Washington.

I-5/SR 520 Interchange

The 4-Lane Alternative would connect SR 520 to I-5 in almost the same way as it does today. One lane would exit to either East Roanoke Street or northbound I-5 from westbound SR-520. Two lanes would connect to I-5 southbound using the existing structure across I-5. Heading east from I-5 southbound, the existing tunnel would remain intact. From I-5 northbound, a wider two-lane on-ramp would connect to SR 520 eastbound. A new HOV-only ramp would connect SR 520 westbound to the I-5 southbound express lanes.

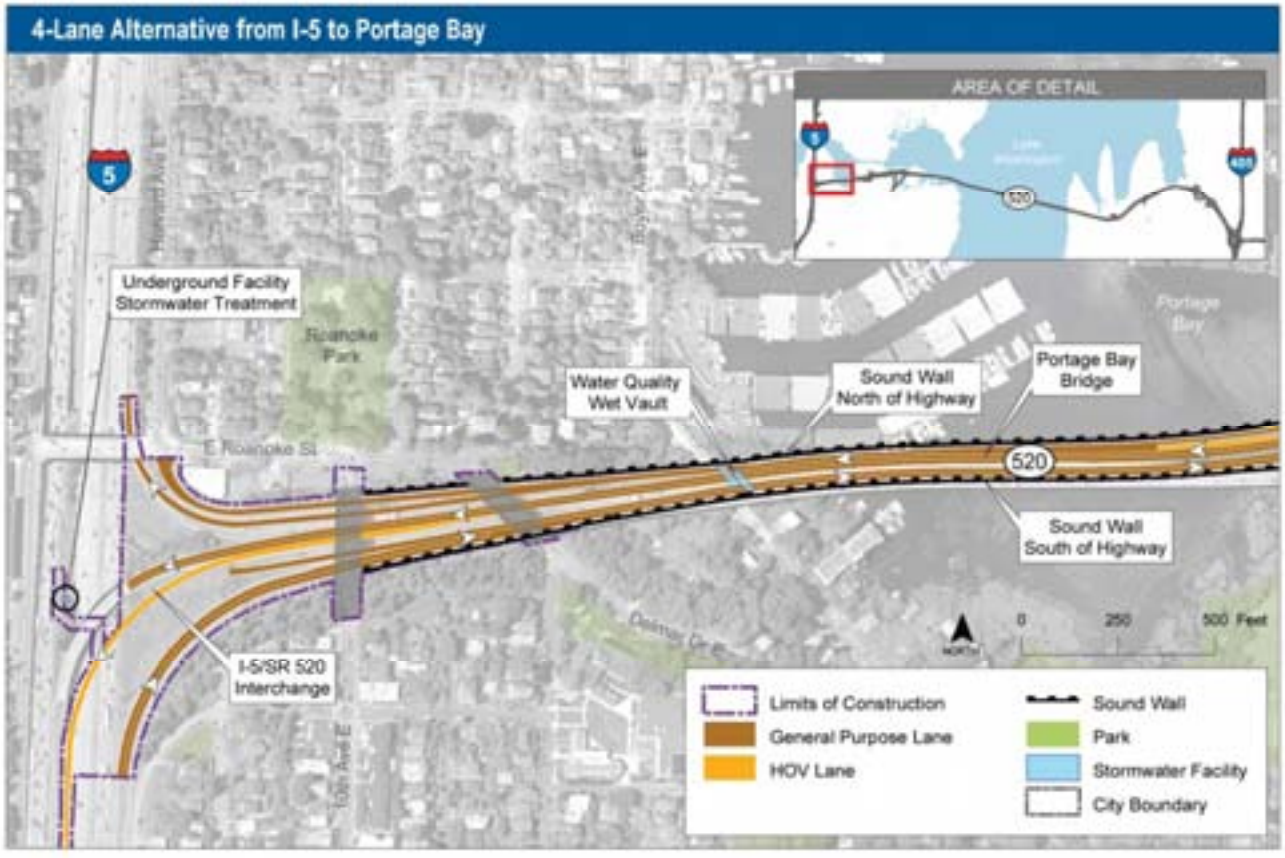

Exhibit 3-3. 4-Lane Alternative from I-5 to Portage Bay

Seattle Bridges Over SR 520

WSDOT would rebuild four bridges in Seattle that carry local streets over SR 520 in order to provide room to widen the highway. The bridges are located at: 10th Avenue East, Delmar Drive East, Montlake Boulevard, and 24th Avenue East. All but Montlake Boulevard would have the same width and lane configuration as the existing structures. The Montlake Boulevard Bridge would be slightly wider and reconfigured in locations to improve operation of the interchange.

Portage Bay Bridge

The Portage Bay Bridge would be widened to the north in order to avoid shoreline impacts to the south. The slope of this bridge would be more gradual than it is today, with portions of the bridge 20 feet higher than the existing bridge. The distance between vertical support columns would average 250 feet, compared to the existing bridge's 100-foot average column spacing.

The Portage Bay Bridge would have seven lanes: four general purpose lanes, a lane in each direction to allow buses to accelerate out of, or decelerate into, the Montlake transit stop, and a westbound auxiliary lane from the Montlake interchange to I-5 northbound. This auxiliary lane is required because the distance between the existing Montlake and I-5 interchange is less than current design standards require, and without it, dangerous weaving patterns would result as vehicles merged into traffic.

Montlake Interchange

The new Montlake interchange would be configured similarly to today's interchange. The following modifications to the interchange functionality have been proposed to improve operations and safety along Montlake Boulevard:

- Signalize the westbound off-ramp as a full access intersection
- Add another lane of left-turn access to the westbound on-ramp
- Add new westbound on-ramp capacity to serve as a transit and HOV bypass lane
- Increase the turning movement capacity at the eastbound off-ramp

South of the interchange, Montlake Place East and East Roanoke Street would be realigned. Similar to today, the Montlake transit stops would be on the outside of the highway.

Exhibit 3-4. 4-Lane Alternative from Portage Bay to Lake Washington

Lake Washington Boulevard Ramps

A new westbound off-ramp to Lake Washington Boulevard and a new eastbound on-ramp from the Boulevard would pass over the WSDOT-owned peninsula, west of the Arboretum, instead of over the water, as the existing ramps do.

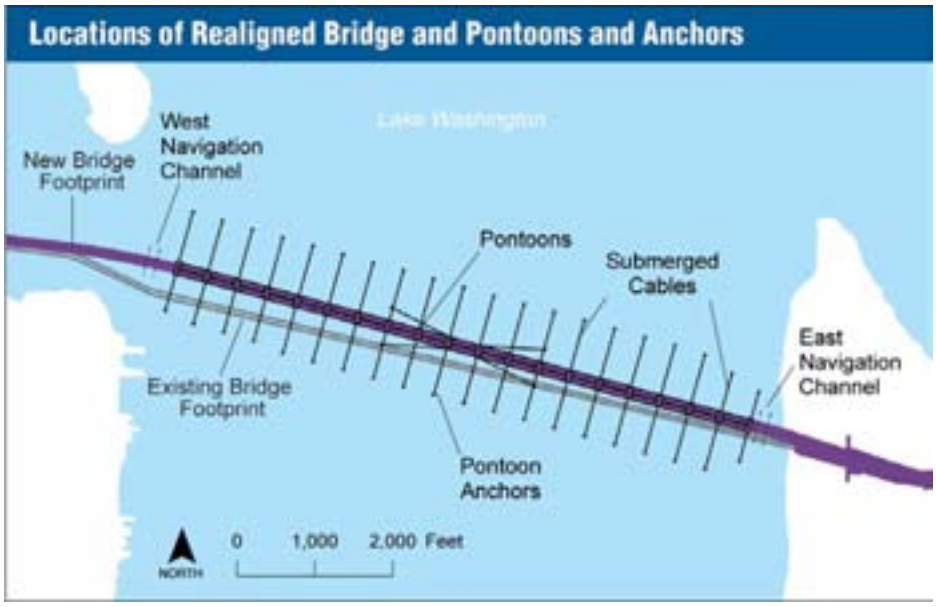

Exhibit 3-5. SR 520 Bridge Alignment and Anchors

Evergreen Point Bridge

The floating portion of the bridge would be constructed up to 200 feet north of the existing bridge. The bridge would have two 12-foot general purpose lanes in each direction, 4-foot wide inside shoulders, and 10-foot wide outside shoulders. The 14-foot-wide bicycle/pedestrian path would be located on the north side of the bridge.

Under the 4-Lane Alternative, pontoons supporting the bridge would be sized to accommodate future high capacity transit (HCT). Two parallel rows of 60-foot-wide pontoons would support the structure (see Exhibits 3-5 and 3-6).

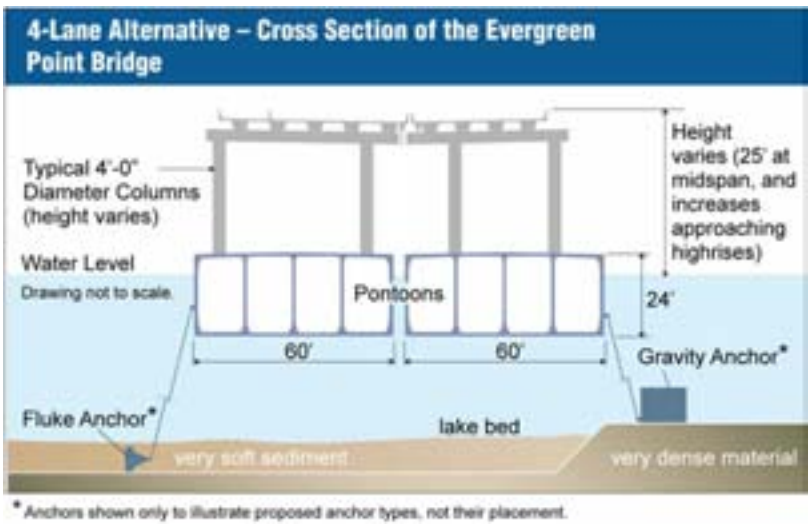

Exhibit 3-6. 4-Lane Alternative Cross Section of Evergreen Point Bridge

The new bridge does not have a draw span under either alternative. Instead, the new west approach of the Evergreen Point Bridge would be higher and less steep than the current highrise. The west approach structure would provide a navigational clearance of 25

feet, 19 feet less than the existing structure. The new east approach structure would provide 70 feet of navigational clearance, 13 feet more than the existing highrise.

The Eastside transportation components are described below. Exhibits 3-7 through 3-10 illustrate the 4-Lane Alternative from Lake Washington to Bellevue Way.

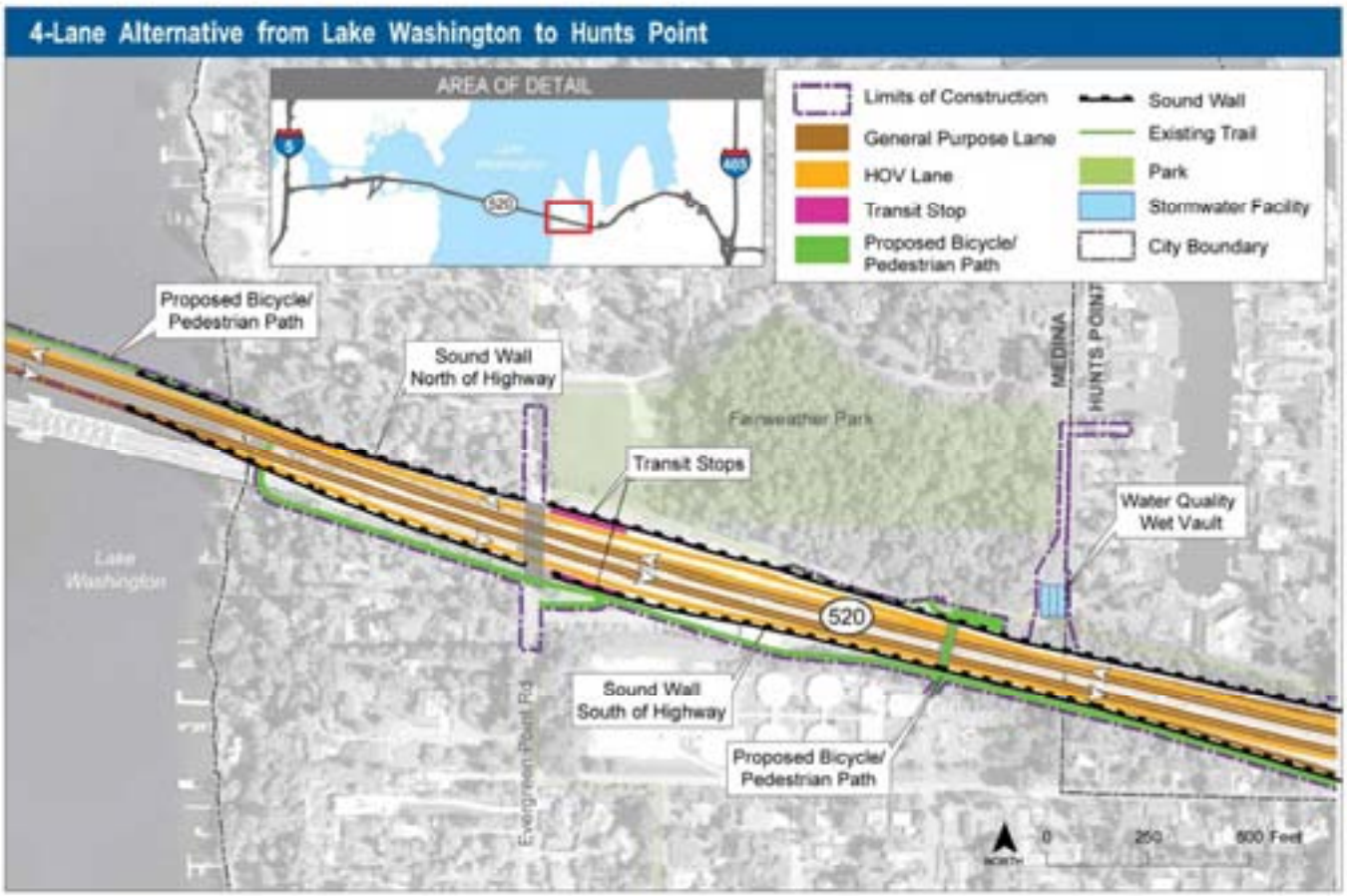

Exhibit 3-7. 4-Lane Alternative from Lake Washington to Hunts Point

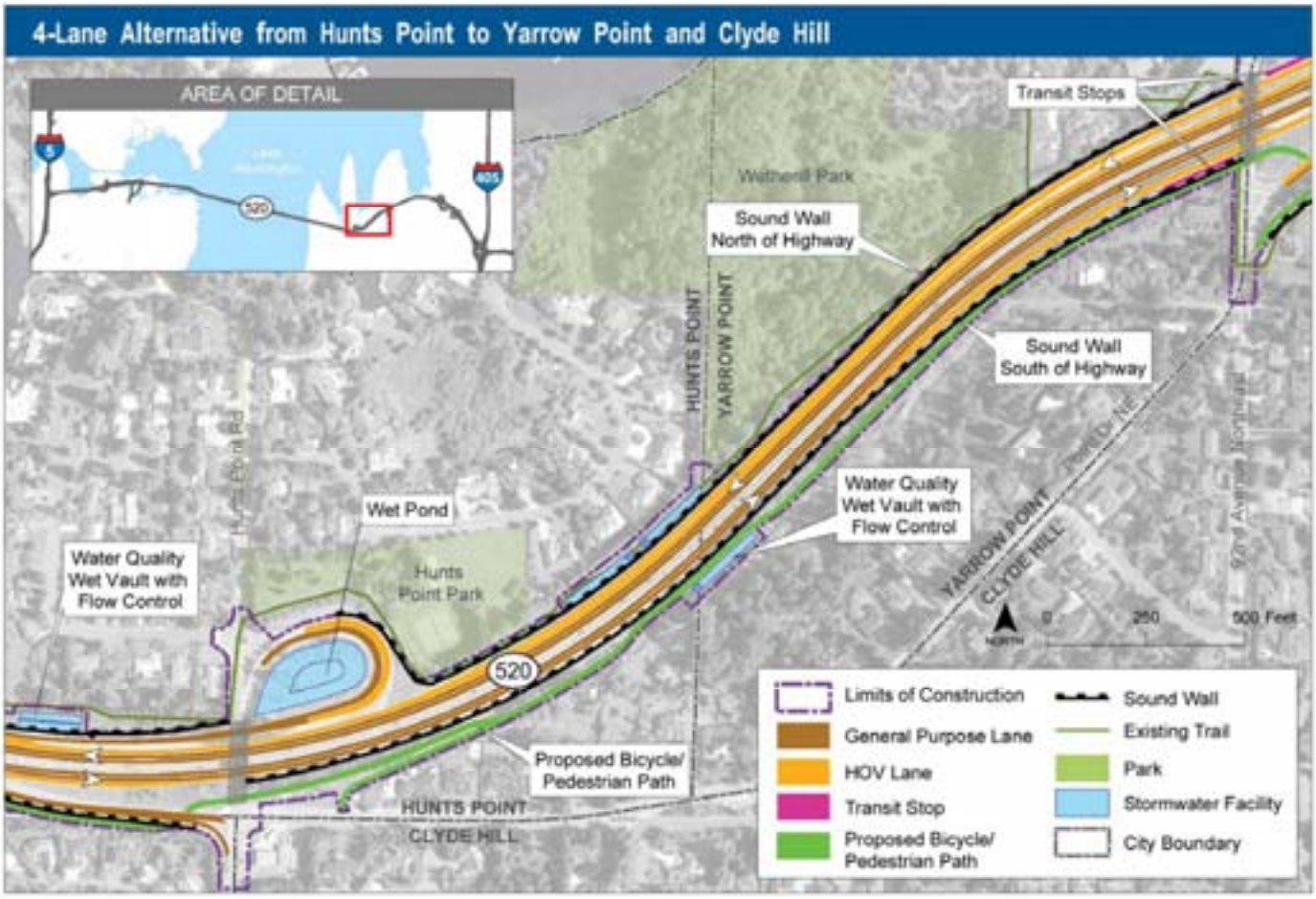

Exhibit 3-8. 4-Lane Alternative from Hunts Point to Yarrow Point and Clyde Hill

Eastside Bridges Over SR 520

Three bridges carrying local streets over SR 520 east of the Evergreen Point Bridge are rebuilt under both alternatives. The Evergreen Point Road Bridge would have the same width and lane configuration as the existing structure. Eastbound and westbound transit stops would be located just east of Evergreen Point Road, on the outside of the highway. The 84th Avenue Northeast and 92nd Avenue Northeast bridges would also be rebuilt with similar interchange configurations to those that exist today. Transit stops would be located on the outside of the SR 520 eastbound and westbound lanes, just east and west of the 92nd Avenue Northeast Interchange.

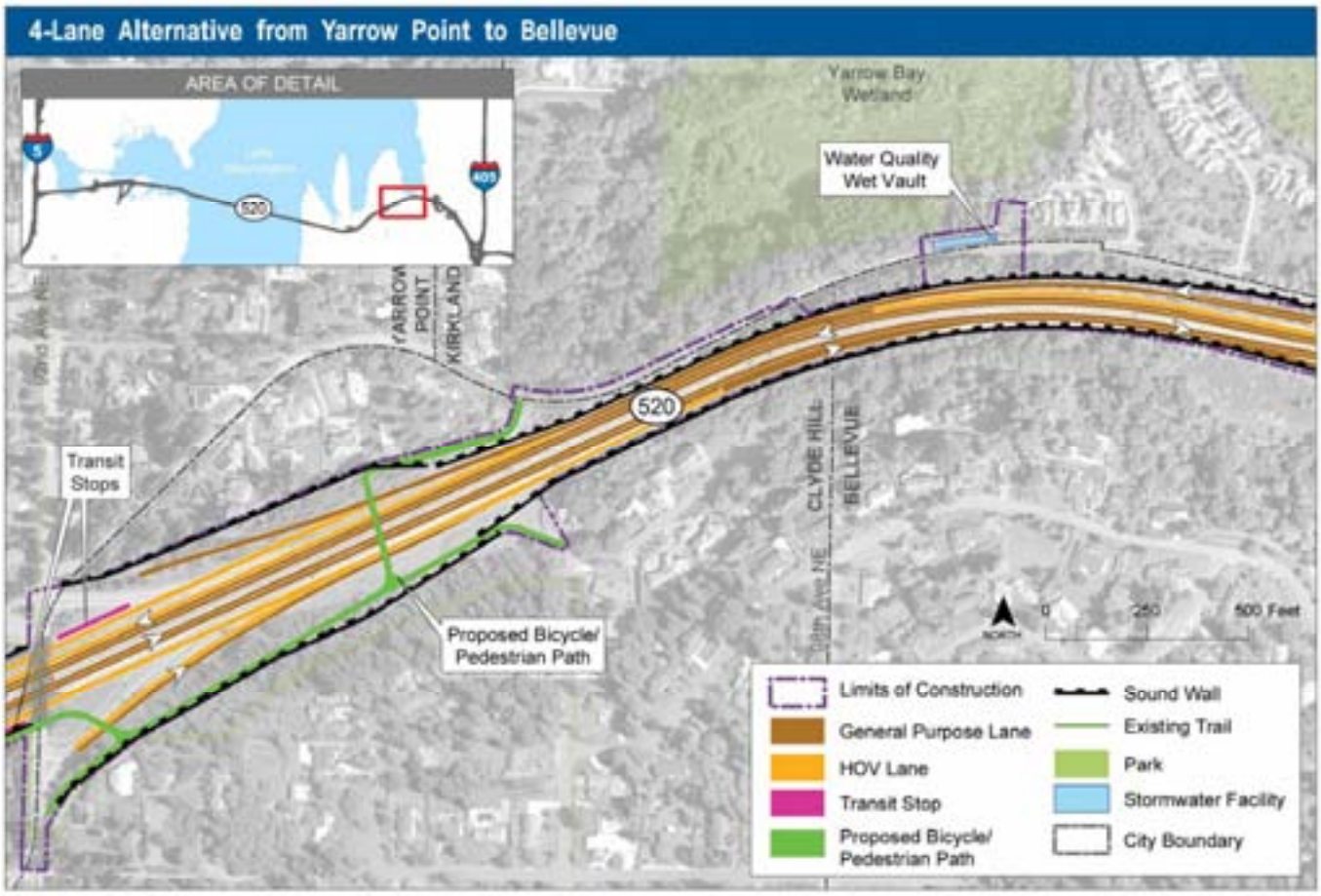

Exhibit 3-9. 4-Lane Alternative from Yarrow Point to Bellevue

Bellevue Way Interchange

Only minor changes would be made to the Bellevue Way interchange, as shown in Exhibit 3-10. A new lane would be added to Lake Washington Boulevard Northeast between Northup Way and the westbound on-ramp. The SR 520 eastbound off-ramp to Bellevue Way Northeast would be rebuilt as a single general purpose lane ramp.

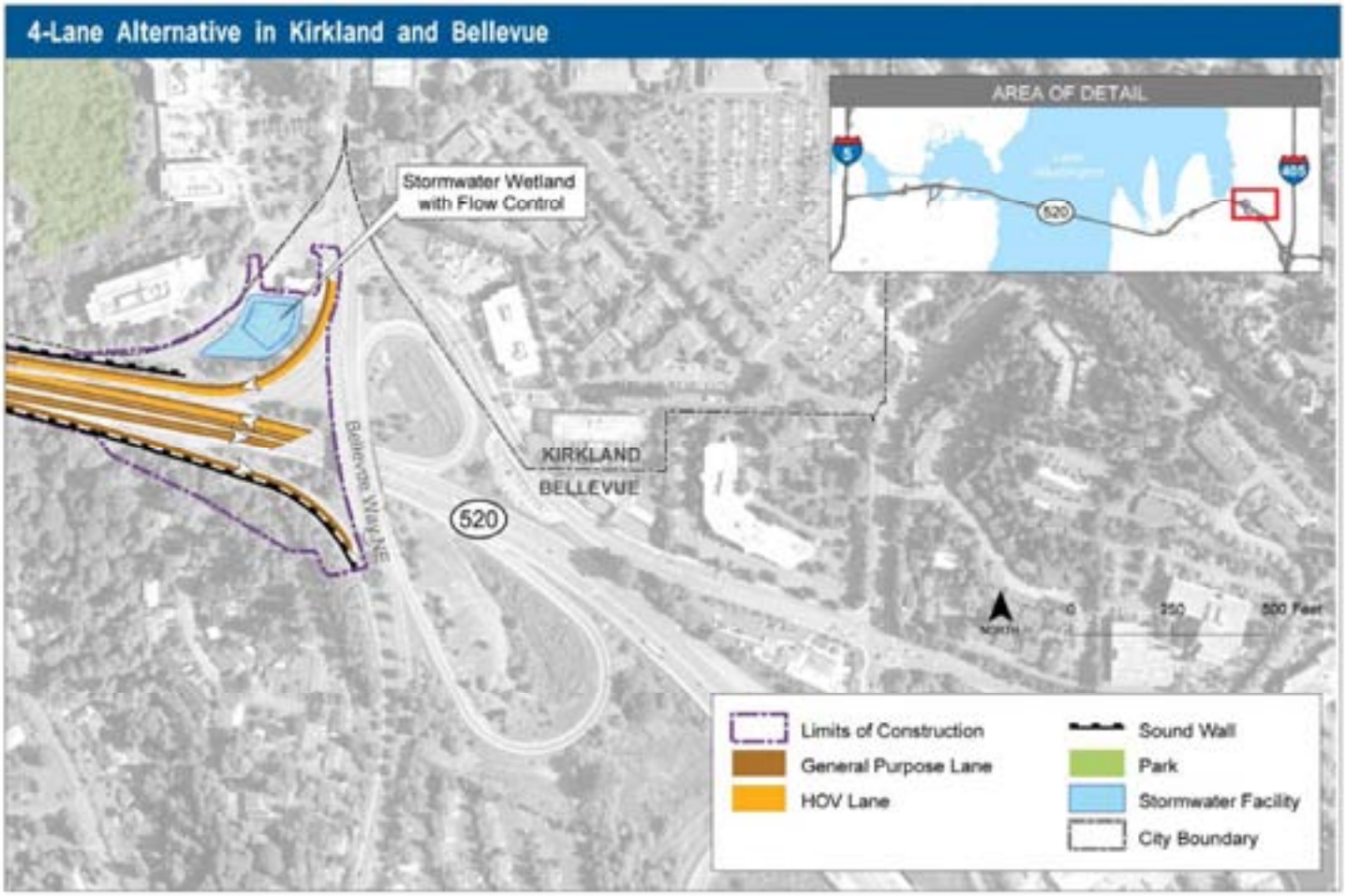

Exhibit 3-10. 4-Lane Alternative in Kirkland and Bellevue

What is the cost of the 4-Lane Alternative?

According to the 2005 CEVP Final Report, the 90th percentile cost is $2,020 million in year of expenditure dollars, assuming project completion in 2017. Project costs are updated annually and 2006 cost updates and information will be made available for the Panel as they are confirmed this summer.

What is the definition of the 6-Lane Alternative?

The 6-Lane Alternative would also increase safety and reliability for the corridor. In addition, it would increase mobility for people and goods by completing the regional HOV connection across SR 520. This alternative would include two general purpose lanes in each direction, and one inside HOV lane in each direction. The new lanes, combined with the toll, would provide an incentive to use transit and HOV, and would meet more of the person and vehicular travel demand than the 4-Lane Alternative. SR 520 and its bridges would be rebuilt from I-5 to 108th Avenue Northeast in Bellevue, with an auxiliary lane added on SR 520 eastbound from east of I-405 to 124th Avenue Northeast. Roadway shoulders would meet the current design standards, with 10-foot-wide inside shoulders and 10-foot-wide outside shoulders (see Exhibit 3-11). The freeway transit stops would be reconstructed on the inside of the highway.

Exhibit 3-11. 6-Lane Alternative Roadway Cross Section

Connection Lids

A key feature of the 6-Lane Alternative is five 500-foot-long lids across SR 520. These lids would help to reconnect communities that were separated when SR 520 was built in the 1960s; they also would provide new landscaped, passive open spaces to the adjoining communities. The project's Executive Committee determined that the lids should be part of the 6-Lane Alternative to help offset the width of the additional lanes. Two of the lids would be in Seattle: one connecting Roanoke Park with North Capitol Hill, and the other connecting the Montlake neighborhood across SR 520. The first lid would carry 10th Avenue East and Delmar Drive East; the second would carry Montlake Boulevard over SR 520. On the Eastside, there would be three lids at Evergreen Point Road, 84th Avenue Northeast, and 92nd Avenue Northeast bridge crossings. Exhibits 3-12 and 3-13 illustrate community ideas for these lids.

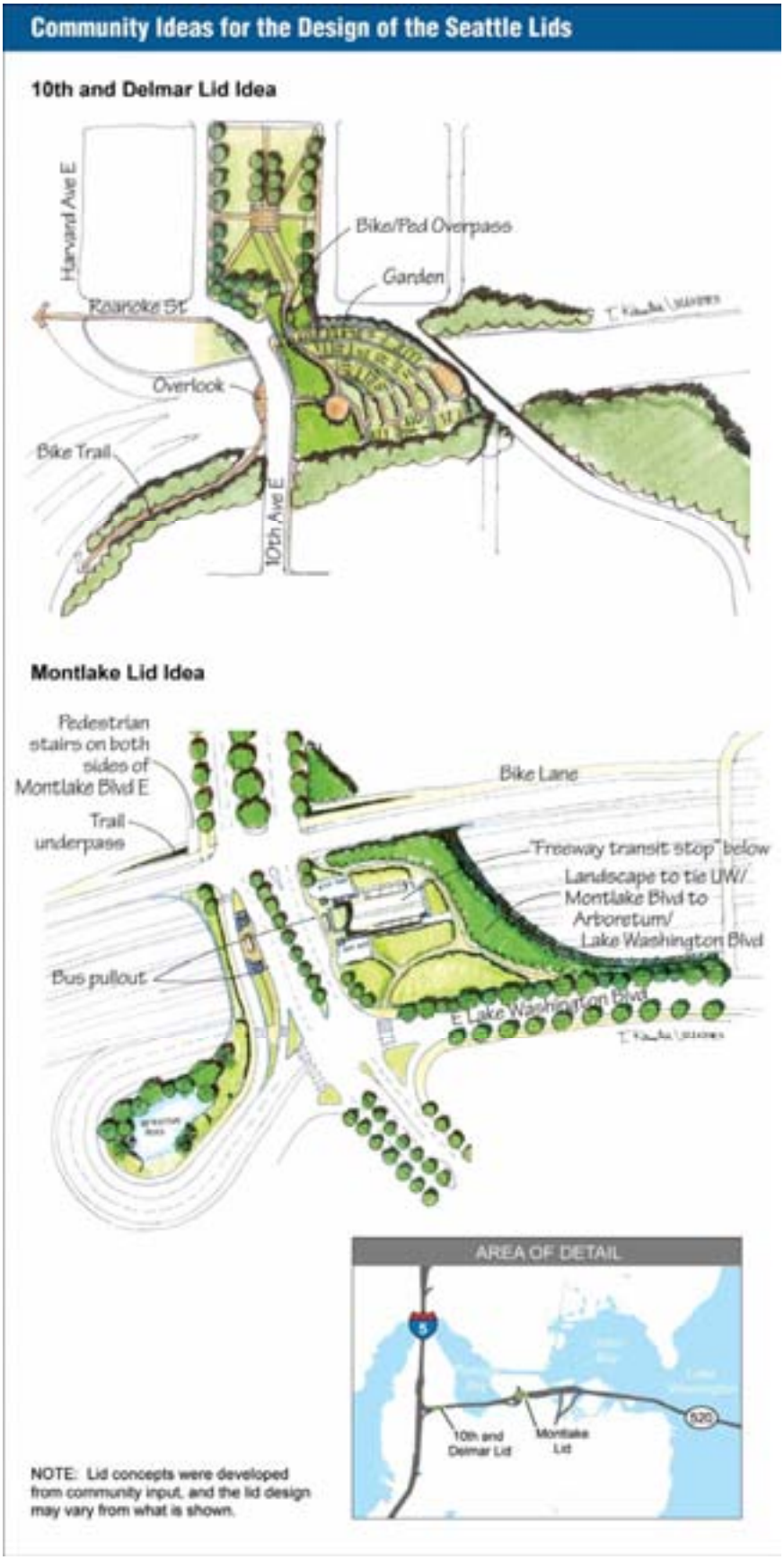

Exhibit 3-12. Seattle Lid Ideas for SR 520

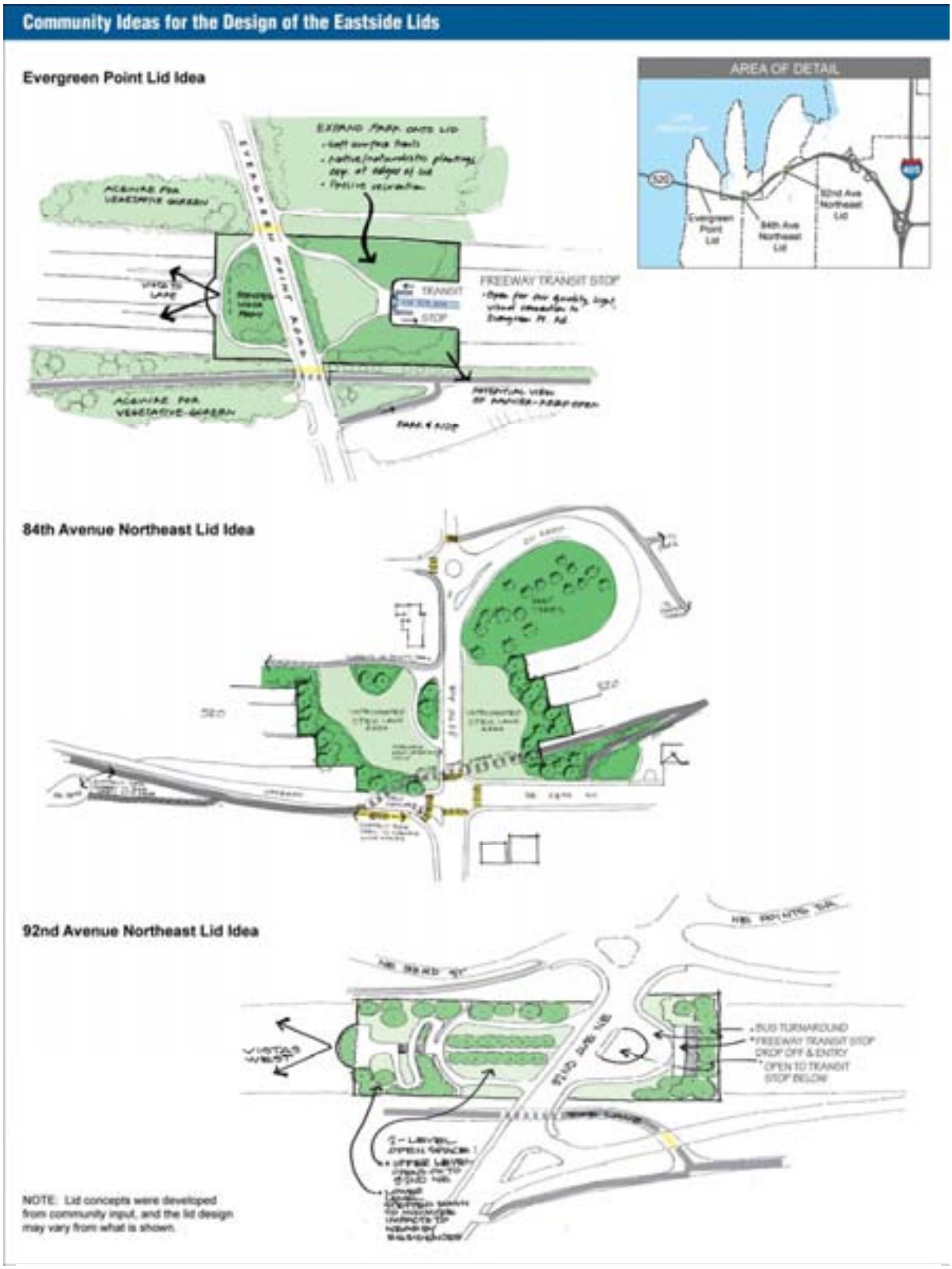

Exhibit 3-13. Eastside Lid Ideas for SR 520

What are the Seattle transportation components of the 6-Lane Alternative?

Exhibits 3-14 and 3-15 illustrate the 6-Lane Alternative in Seattle.

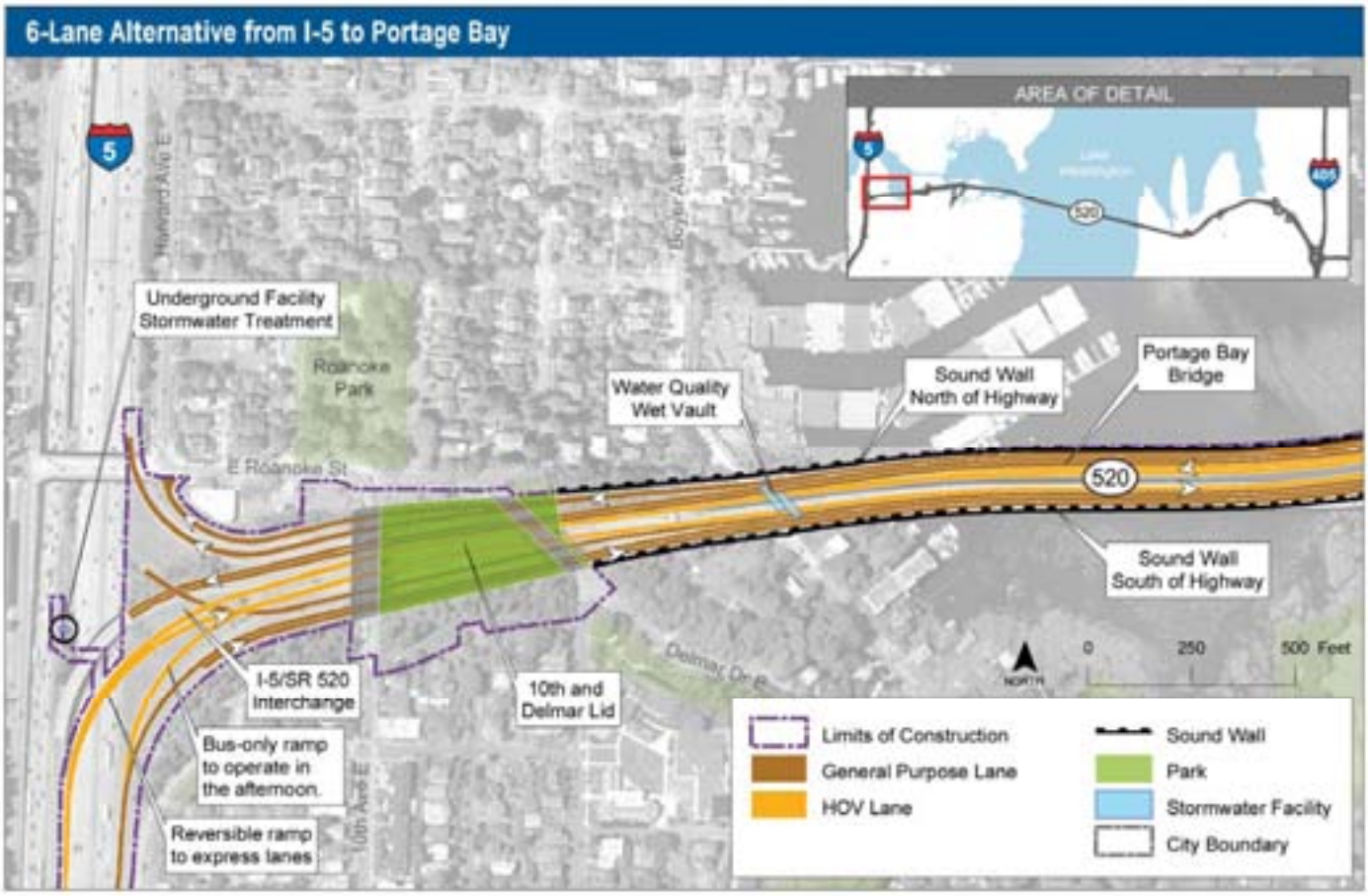

Exhibit 3-14. 6-Lane Alternative from I-5 to Portage Bay

I-5/SR 520 Interchange

The connection of SR 520 to I-5 would be similar to the 4-Lane Alternative, but would include a new ramp over I-5 with a reversible HOV lane to connect the SR 520 HOV lanes to the I-5 express lanes. The connection of I-5 to SR 520 eastbound would also be similar to the 4-Lane Alternative, with a few exceptions. From southbound I-5, the eastern portion of the existing tunnel would be rebuilt to include a wider 15-foot lane and an 8-foot outside shoulder. From northbound I-5, a wider two-lane on-ramp would connect to SR 520. The on-ramp would also include a

bus-only ramp connecting to the center HOV lane that would operate only in the afternoon.

Seattle Bridge Crossings over SR 520

Similar to the 4-Lane Alternative, four bridges over SR 520 would be rebuilt to provide room to widen the highway—10th Avenue East, Delmar Drive East, Montlake Boulevard, and 24th Avenue East. The first three of these would cross SR 520 on the two 500-foot-wide lids described earlier in this section.

Portage Bay Bridge

The section from I-5 to the Montlake Boulevard Interchange, including the Portage Bay Bridge, would be nine lanes wide under the 6-Lane Alternative, including four general purpose lanes, two HOV lanes, one transit-only lane, and two auxiliary lanes (westbound and eastbound).

Montlake Interchange

The Montlake Interchange would function similarly to the 4-Lane Alternative, with added HOV direct access ramps. The Montlake transit stops on SR 520 would be located in the center of the highway to allow buses using the inside HOV lanes to access the stops. Pedestrian access to the transit stops would be from the Montlake lid via stairs, escalators and/or elevators.

Lake Washington Boulevard Ramps

Similar to the 4-Lane Alternative, the existing Lake Washington Boulevard ramps and the ramps from the never-completed R.H. Thompson Expressway would be removed and the Lake Washington Boulevard Interchange would be reconstructed.

Exhibit 3-15. 6-Lane Alternative from Portage Bay to Lake Washington

Evergreen Point Bridge

Similar to the 4-Lane Alternative, the floating portion of the bridge would lie up to 200 feet north of the existing bridge. Under the 6-Lane Alternative, the bridge would have two 12-foot general purpose lanes in each direction, one inside HOV lane in each direction, and 10-foot wide inside and outside shoulders.

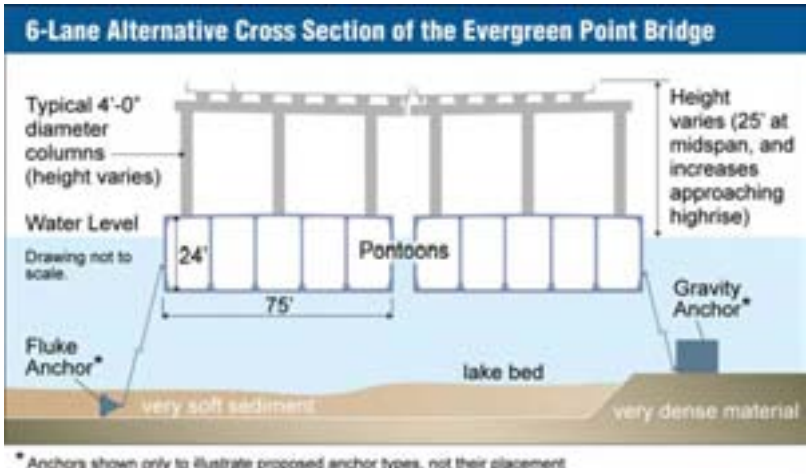

Exhibit 3-16. SR 520 Evergreen Point Bridge Cross Section

The bicycle/pedestrian path and navigational clearance under the west and east highrises would be the same as described for the 4-Lane Alternative.

The pontoons would be sized to accommodate future high capacity transit (HCT). Two parallel rows of 75-foot-wide pontoons would support the structure. Exhibit 3-16 is a cross section of the Evergreen Point Bridge.

Eastside Bridges Over SR 520

The Evergreen Point Road overpass would be rebuilt as part of a new lid (about 500 feet long) that would also include Evergreen Point Road. Transit stops and center HOV lanes would be located in the center of SR 520 east of the Evergreen Point Bridge.

The 84th Avenue Northeast Interchange would be configured similarly to the 4-Lane Alternative. However, under the 6-Lane Alternative, this interchange would have a 500-foot-long lid, which carries 84th Avenue Northeast over SR 520 and provides new open space to help connect the Medina and Hunts Point communities.

The 92nd Avenue Northeast Interchange would also be configured similarly to the 4-Lane Alternative, but would have a lid (about 500 feet long) to carry 92nd Avenue Northeast over SR 520 and help connect the Clyde Hill and Yarrow Point communities. Transit stops would be located in the center of SR 520 just underneath the 92nd Avenue Northeast lid for buses going both eastbound and westbound.

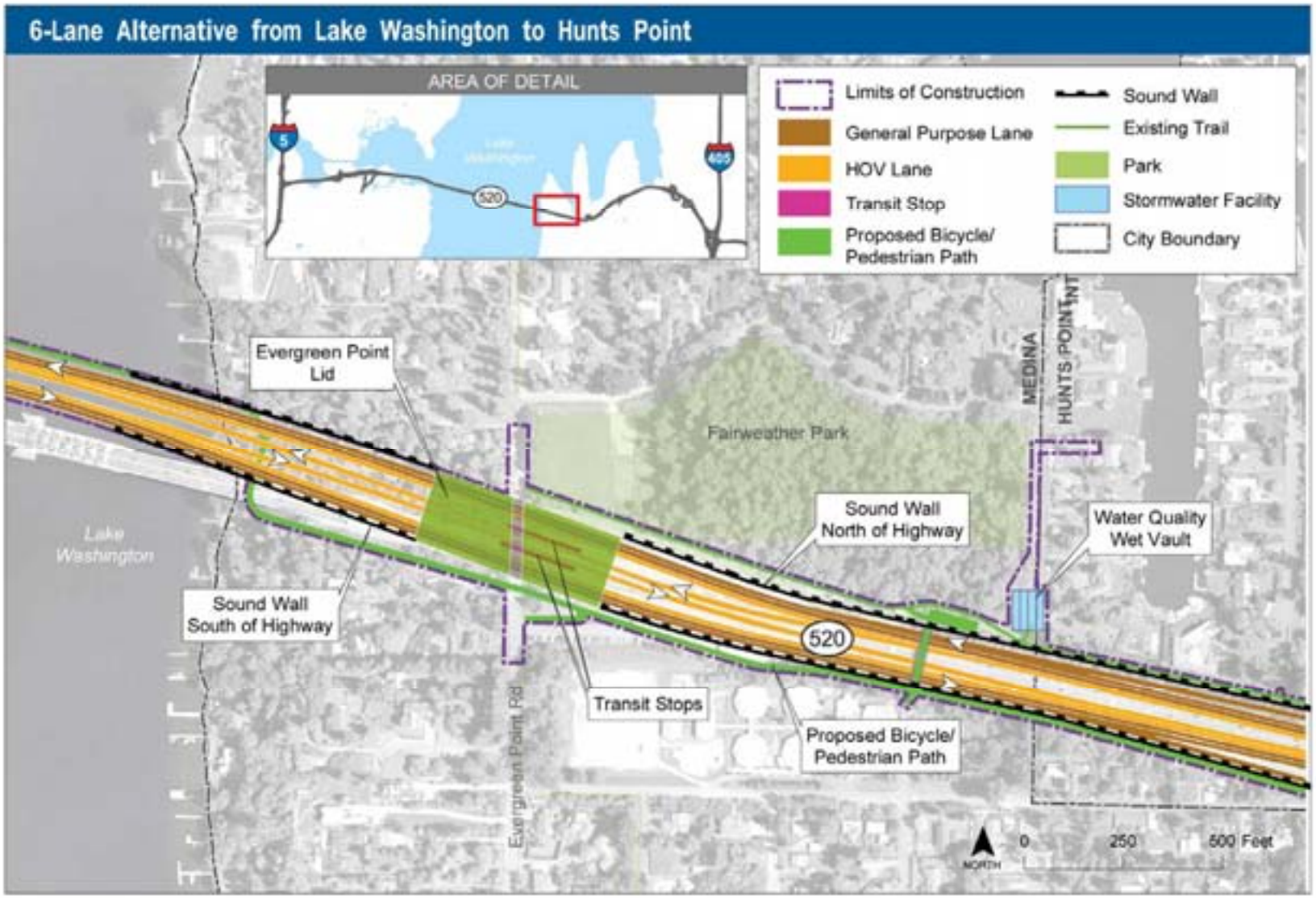

Exhibit 3-17. 6-Lane Alternative from Lake Washington to Hunts Point

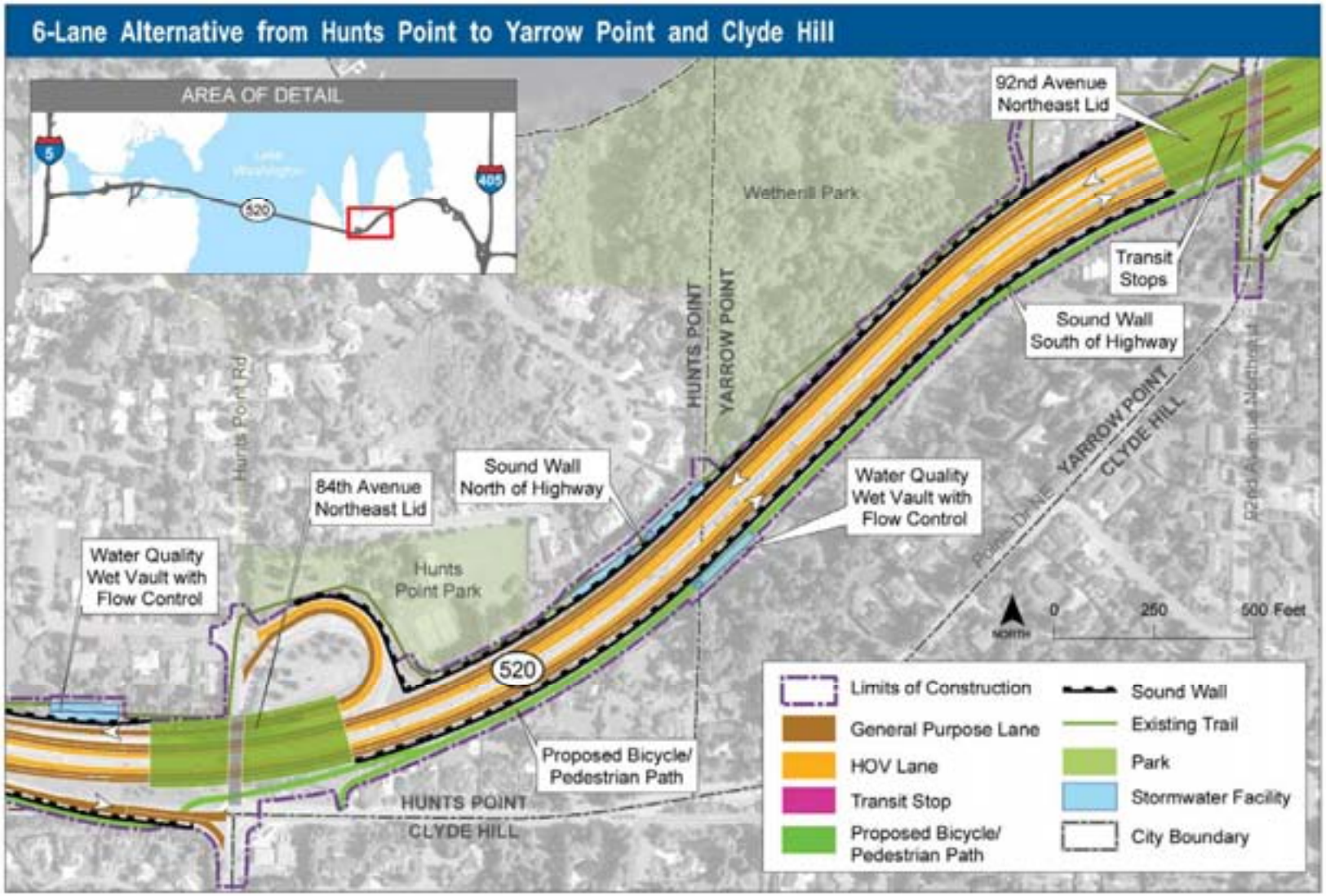

Exhibit 3-18. 6-Lane Alternative from Hunts Point to Yarrow Point and Clyde Hill

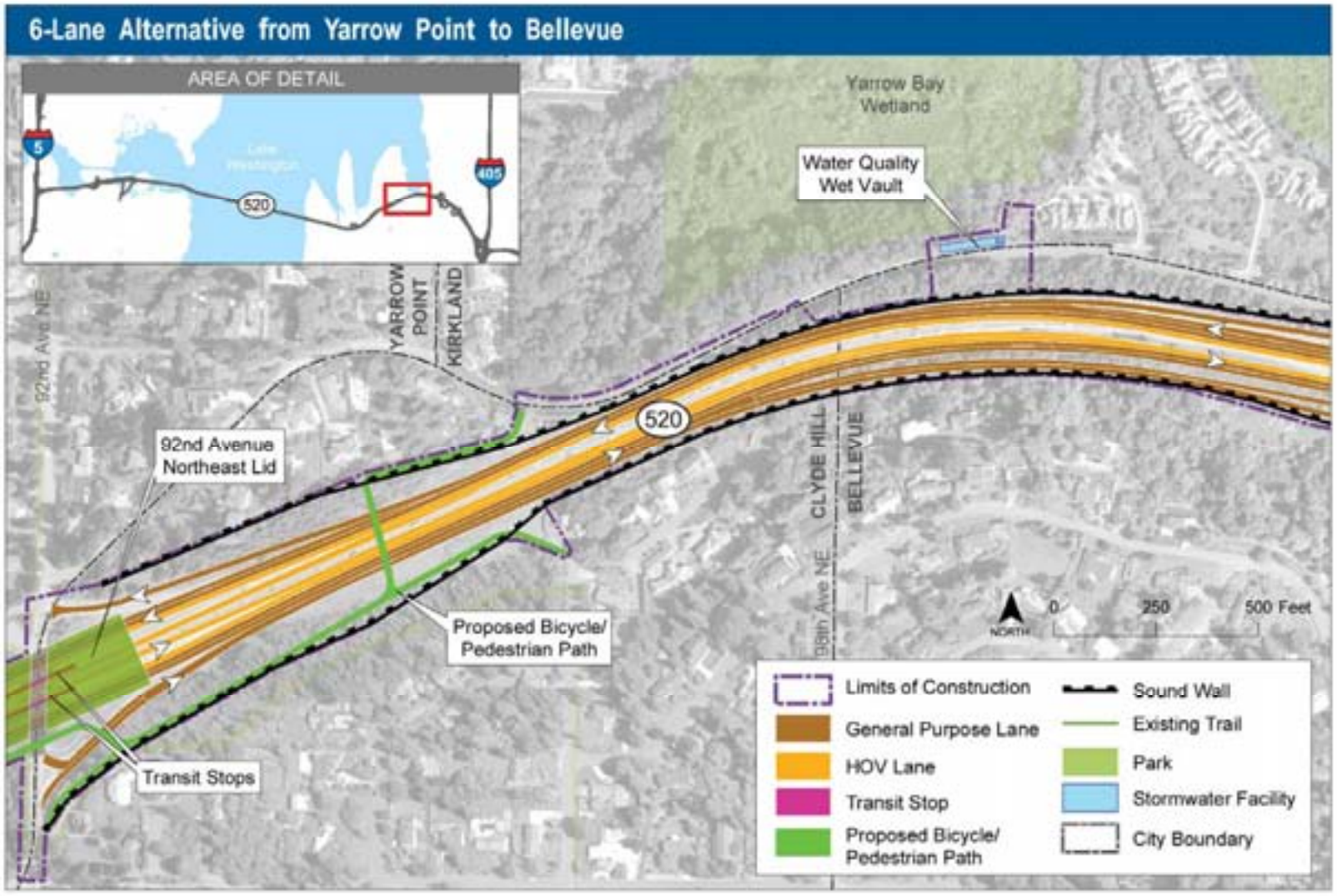

Exhibit 3-19. 6-Lane Alternative from Yarrow Point to Bellevue

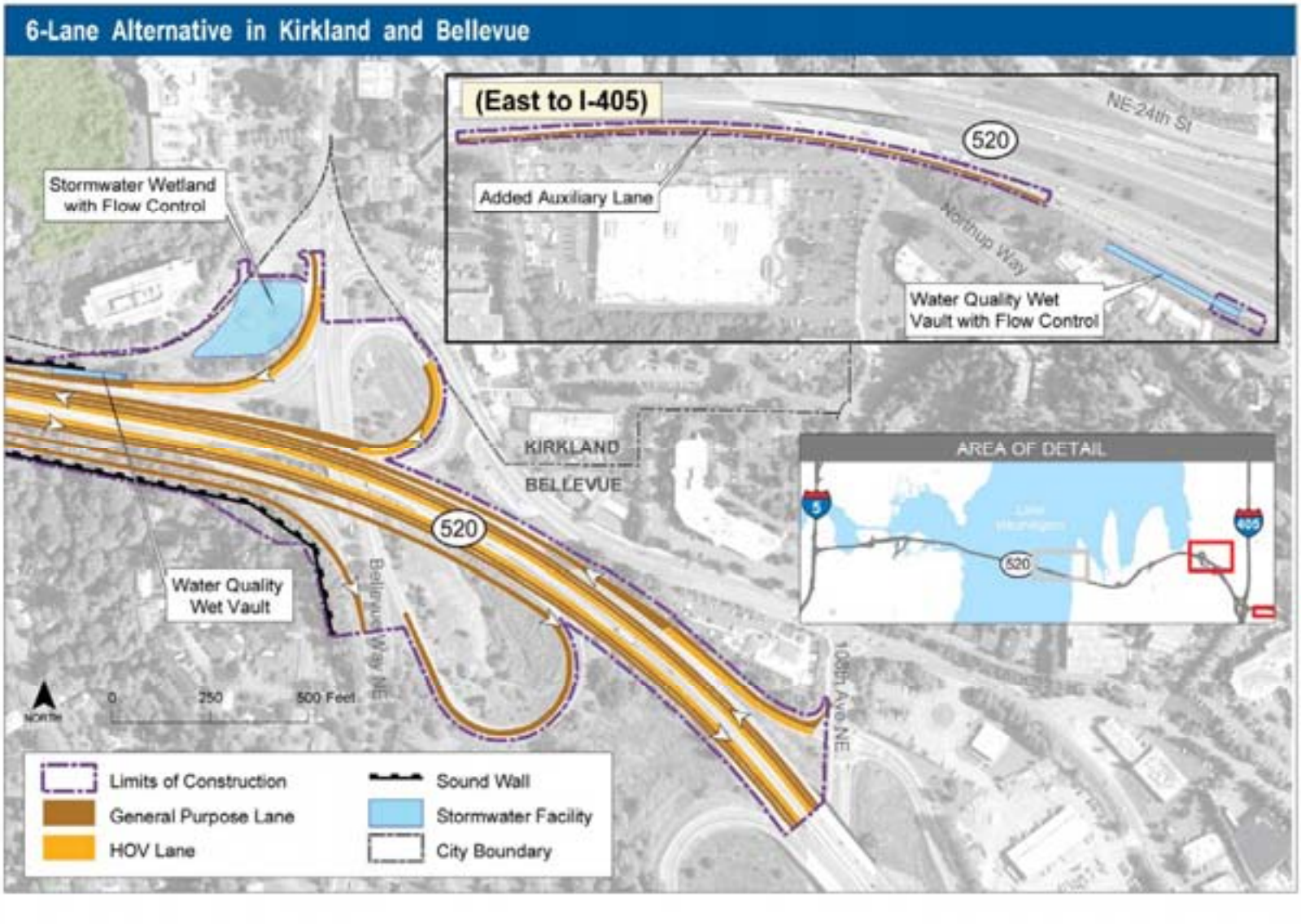

Exhibit 3-20. 6-Lane Alternative in Kirkland and Bellevue

Bellevue Way Interchange

The Bellevue Way Interchange would be similar to the interchange that exists today. The ramp configuration would not change except for improvements to ramp geometry.

108th Avenue NE Interchange

The 108th Avenue NE Interchange westbound on-ramp would be rebuilt to accommodate an HOV bypass lane. The ramp configuration would not change except for minor improvements to the ramp geometry.

East of I-405

An eastbound auxiliary lane would be added from I-405 to the 124th Avenue Northeast exit from SR 520. The SR 520 bridge that crosses over Northup Way would be widened to accommodate the new lane. No additional changes would be made to the SR 520 westbound lanes east of I-405. Corridor-wide, HOV lanes would be relocated from outside to inside HOV lanes.

What is the cost of the 6-Lane Alternative?

According to the 2005 CEVP Final Report, the 90th percentile cost is $2,827 million in year of expenditure dollars, assuming project completion in 2017. 2006 cost updates and information will be made available for the Panel as they are confirmed this summer.

What are the design options for the 6-Lane Alternative?

After developing the 6-Lane Alternative, WSDOT identified several optional designs in response to community and agency input. The design options were developed to reduce the width of the 6-Lane Alternative, provide more direct transit opportunities in the corridor, and/or address community concerns. Current neighborhood, jurisdiction, and agency opinions about the options are discussed later in this document. Seven design options were ultimately developed, and are analyzed in the Draft EIS. Four of these are in Seattle and three are on the Eastside.

Seattle Options

Pacific Street Interchange

The Pacific Street Interchange option removes the existing Montlake transit stop and consolidates the Montlake and Lake Washington Boulevard interchanges into a single interchange. Exhibit 3-21 illustrates

this option. The new Pacific Street Interchange would be located approximately 2,100 feet to the east of the existing Montlake Interchange, primarily over the WSDOT-owned peninsula; some of the interchange crosses north of the Arboretum, over parts of Foster and Marsh Islands. The new interchange would include exclusive transit/HOV direct access ramps for the westbound off-ramp and eastbound on-ramp. From SR 520, there would be new general purpose connections to the north via a new bridge over Union Bay, and south to Lake Washington Boulevard. The new bridge to the north would essentially be a new portion of Pacific Street, extending from Lake Washington Boulevard (south of SR 520), over Union Bay, to Pacific Street, near the University of Washington's (UW) Husky Stadium.

The Pacific Street extension would pass through what is now the Husky Stadium parking lot, then join the existing intersection of Pacific Street and Montlake Boulevard. This intersection would be lowered by 8 to 10 feet and bridged to provide pedestrian access across Montlake Boulevard and Pacific Street. North of the intersection, the option would add a northbound lane to Montlake Boulevard to a point just east of the Northeast 45th Street and a southbound lane between the intersection and 25th Avenue Northeast.

The Pacific Street bridge over Union Bay would be four lanes wide and would include a 14-foot wide bicycle path. The bridge has been designed with a 110-foot navigation clearance to accommodate two existing large research vessels that travel through the Montlake Cut to Lake Washington. The project team is pursuing possibilities for lowered clearance.

This option gives SR 520 a smaller footprint across Portage Bay. From Montlake to I-5, SR 520 would be six lanes wide (three in either direction), compared to nine lanes for the original 6-Lane Alternative. The two auxiliary lanes for the Montlake freeway transit stop and the westbound acceleration lane would not be needed because the new interchange would be located farther east, increasing the distance between the interchange and I-5. This increased distance would allow vehicles to safely get up to speed when merging onto and exiting SR 520.

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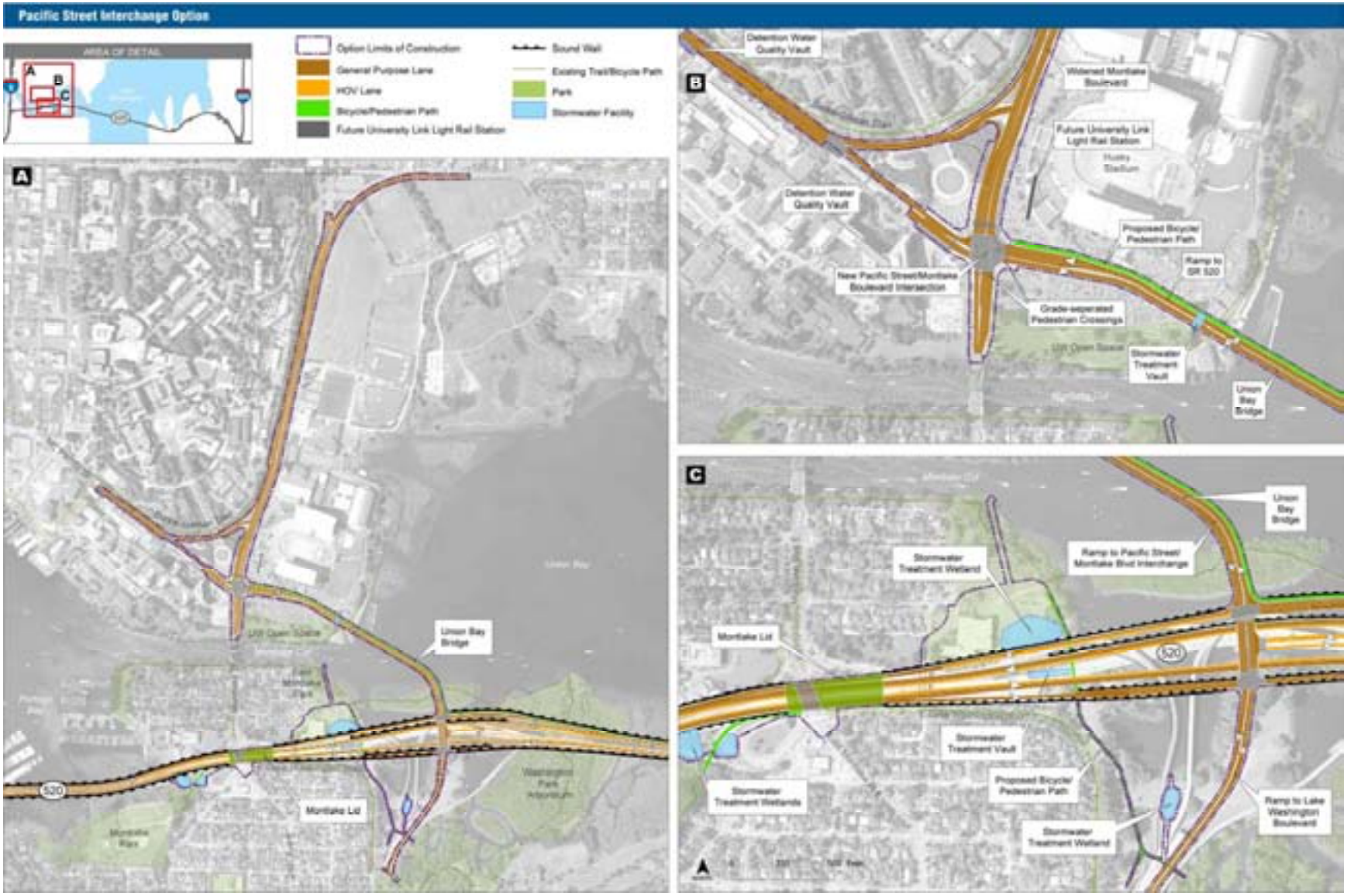


Exhibit 3-21. Pacific Street Interchange Option

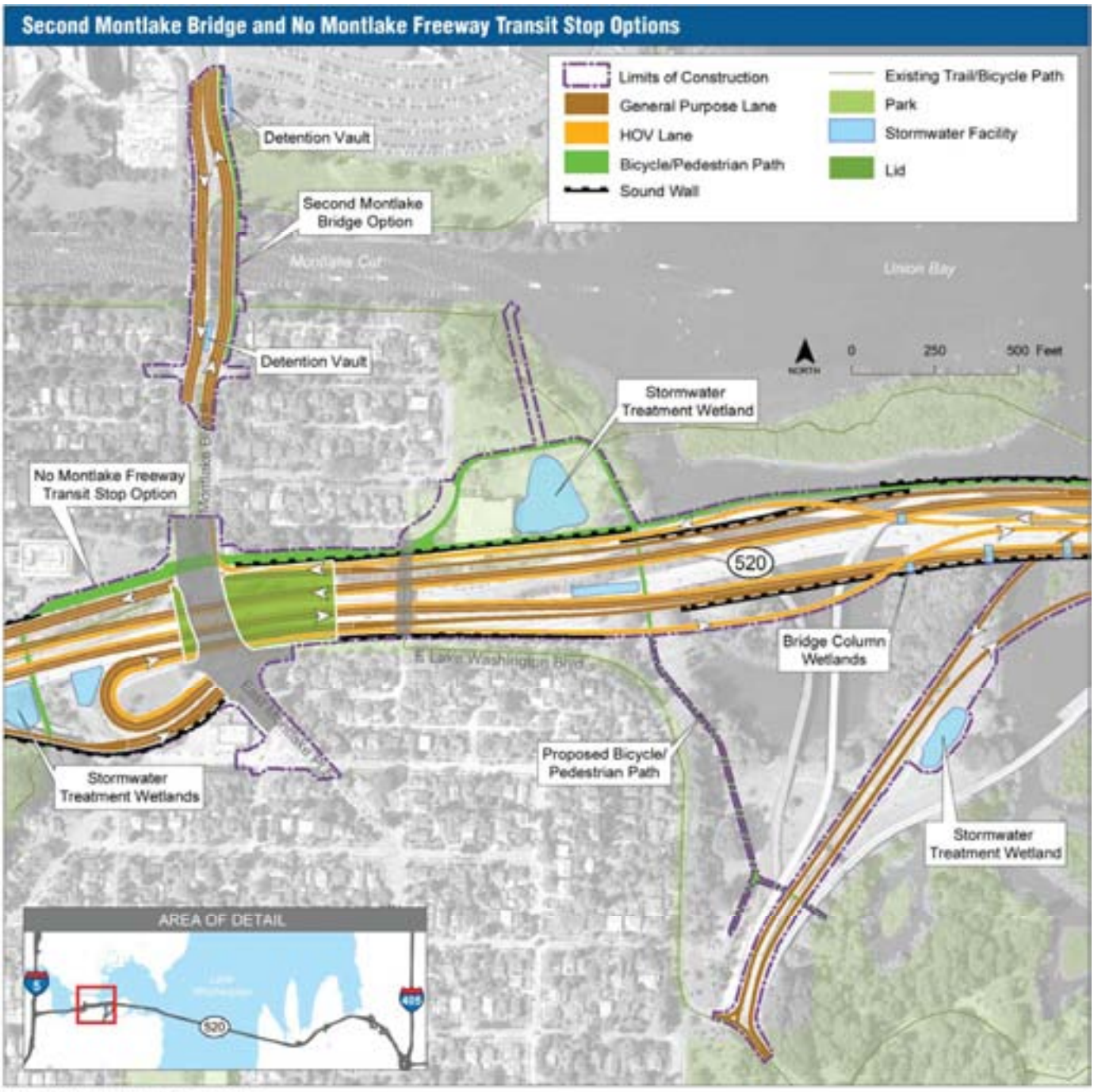
The Pacific Street Interchange option would improve access to and from northeast Seattle, and alleviate existing congestion in the Montlake interchange area. It would also provide a more reliable transit connection to the Sound Transit University Link station at Husky Stadium, because buses coming from SR 520 to the light rail station would not need to wait for openings of the Montlake Bridge.

The No Montlake Freeway Transit Stop

This option eliminates the Montlake freeway transit stop, which could narrow the footprint of the 6-Lane Alternative through Montlake by as much as 40 feet, in addition to reducing the width of the Portage Bay Bridge to eight lanes (one less than the original 6-Lane Alternative). Bus riders who currently use this stop would instead board buses at the University of Washington or use the future Sound Transit University Link light rail station at Husky Stadium (0.25 mile to the north). WSDOT is working with Sound Transit and King County Metro to determine how transit riders could be served with re-routed or additional service. Initial estimates indicate that four to six additional buses per hour would be needed. The Pacific Street Interchange option also removes this transit stop by eliminating the Montlake interchange. Exhibit 3-22 illustrates the No Montlake Freeway Transit Stop option for the 6-Lane Alternative.

Second Montlake Bridge

The Second Montlake Bridge option is the same as the No Montlake Freeway Transit Stop option (discussed above), and also includes a second drawbridge across the Montlake Cut, parallel to the existing Montlake Bridge. This option has the potential to improve traffic operations through the corridor by increasing capacity across the Montlake Cut. The new bridge would carry three lanes of northbound traffic, and the existing bridge would carry three lanes of southbound traffic. This option narrows SR 520 through the Montlake neighborhood and continues to provide transit access from SR 520 to the University of Washington across the Montlake Cut. As for the No Montlake Freeway Transit Stop option, the width of the Portage Bay Bridge would be reduced to eight lanes with this option. Exhibit 3-21 illustrates the Second Montlake Bridge option for the 6-Lane Alternative.



NOTE: The Second Montlake Bridge Option assumes a pairing with the No Montlake Freeway Transit Stop Option.

Exhibit 3-22. Second Montlake Bridge and No Montlake Freeway Transit Stop Options

Eastside Options

Following is a description of the Eastside options. Exhibit 3-23 illustrates several Eastside options for the 6-Lane Alternative.

No Evergreen Point Freeway Transit Stop

This option eliminates the transit stop at Evergreen Point Road. The Yarrow Point freeway transit stop would serve people and buses now using the Evergreen Point stop, and would not require any physical changes to do so. This option narrows the footprint of SR 520 through Medina by shifting the southern boundary of the highway farther north than the 6-Lane Alternative.

The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast

This option allows buses more direct access from eastbound SR 520 to the South Kirkland Park-and-Ride and from the park-and-ride to westbound SR 520. It adds two new ramps for transit and HOVs to 108th Avenue Northeast—one eastbound off-ramp and one westbound on-ramp. The footprint of SR 520 east of Bellevue Way would be widened slightly to accommodate the new ramps. Both 108th Avenue Northeast and Northup Way would also be widened under this option.

The South Kirkland Park-and-Ride Transit Access – Bellevue Way

This option provides the same improved bus access as the 108th Avenue Northeast option, but uses a different approach. It adds a new HOV/transit lane to the eastbound Lake Washington Boulevard off-ramp and relocates the westbound Bellevue Way on-ramp to Northup Way.

Bicycle/Pedestrian Path to the North

The bicycle/pedestrian path would be located on the north side of SR 520 as it extends east from the SR 520 east approach and would not cross to the south side as originally planned. The path would be separated from the realigned Points Loop Trail as it moves eastward following the northern edge of the SR 520 footprint.

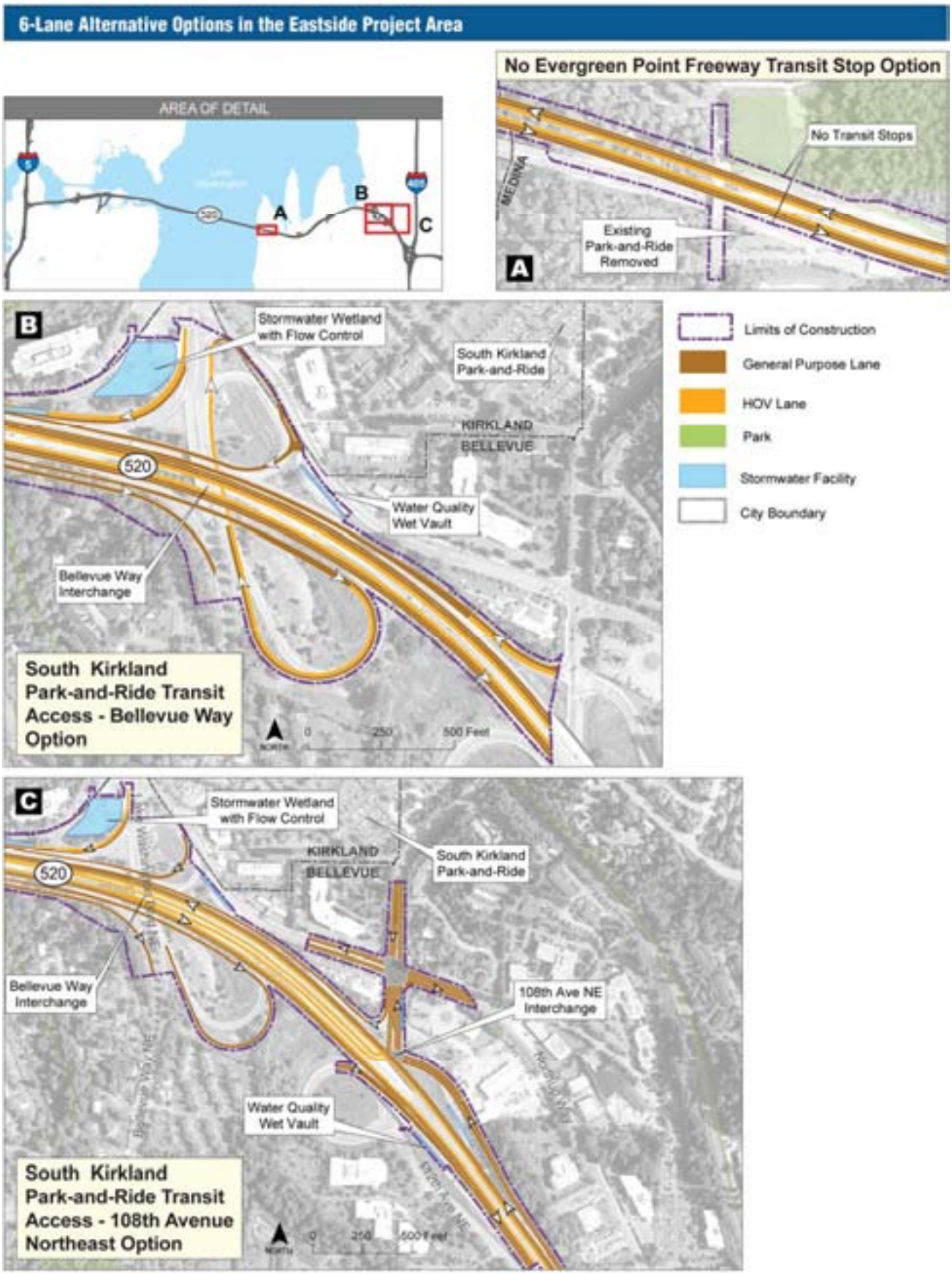


Exhibit 3-23. Eastside Design Options

How do the design options affect the cost of the project?

Exhibit 3-24 summarizes the costs and compatibility of the various design options for the 6-Lane Alternative, based on the 2005 CEVP analysis. The information provided below will be updated this summer once 2006 CEVP cost estimates are available.

Exhibit 3-24. Cost and Compatibility of the 6-Lane Design Options

▪ Costs shown are Year of Expenditure (YOE) dollars based on 2005 CEVP ▪ Cost range includes 10 to 90 percentile risk/opportunity factors ▪ The 6-Lane Full YOE cost range is $2,329 m to $2,827 m	No Montlake Freeway Transit Stop *Subtracts $16 to $20m*	Second Montlake Bascule Bridge *Adds $65 to $75m*	Pacific Street Interchange *Adds $195 to $255m*	No Evergreen Point Freeway Transit Stop *Subtracts $30 to $35m*	S. Kirkland Park & Ride Transit Access *Adds $45 to $55m for 108th Ave* *Adds up to $5m for Bellevue Way*	Bike/Ped Path to the North *Subtracts up to $4m*
No Montlake Freeway Transit Stop* *Subtracts $16 - $20m*		*	*	Subtracts 46-55 m	Adds 30-44 m	Subtracts 20-24 m
Second Montlake Bascule Bridge *Adds $65 - $75m*	*		N/A	Adds 30-45 m	Adds 115-135 m	Adds 61-71 m
Pacific Street Interchange *Adds $195 - $255m*	*	N/A		Adds 160-225 m	Adds 245-315 m	Adds 191-251 m
No Evergreen Pt. Freeway Transit Stop *Subtracts $30- $35m*	Subtracts 46-55 m	Adds 30-45 m	Adds 160-225 m		Adds 15-30 m	Subtracts 34-39 m
S. Kirkland Park & Ride Transit Access *Adds $45 - $55m for 108th Ave* *Adds up to $5m for Bellevue Way*	Adds 30-44 m	Adds 115-135 m	Adds 245-315 m	Adds 15-30 m		Adds 46-56 m
Bike/Ped Path to the North *Subtracts up to $4m*	Subtracts 20-24 m	Adds 61-71 m	Adds 191-251 m	Subtracts 34-39 m	Adds 46-56 m	

***Removing the Montlake Freeway Transit Stop is an assumed component of the Pacific Street Interchange and Second Montlake Bascule Bridge option.**

What are the project's key assumptions?

What are the global assumptions for the project?

The following information applies to the SR 520 project as a whole regardless of the alternative constructed.

Project Funding

Funding from the 2003 Nickel Package and the 2005 Transportation Partnership Account (TPA) is assumed to be secure, with the amount required being available on the dates specified in the legislation. Tolling the SR 520 corridor is also anticipated and the amount of funds generated and available prior to construction through toll-backed bonds is consistent with WSDOT's SR 520 tolling study conducted in April 2004. Recent legislation passed during the 2006 session, in response to funding uncertainty for the SR 520 Project, instructs RTID to develop a plan that provides full funding for the project corridor. The specific components of that plan have not been developed and conversations with regional leaders continue. Although the funding amount received from a regional transportation package is subject to voter approval in November 2007, the assumption is that there will be full funding available for the SR 520 project, from I-5 to essentially I-405.

A summary of secured and anticipated funding sources include:

- State 2003 (Nickel Package) and 2005 (TPA Package) funding
- Toll funding (subject to regional and/or state action)
- RTID funding package (subject to voter approval in November 2007)
- Sound Transit Phase 2 (subject to voter approval in November 2007)
- Future federal funding authorizations
- State sales tax may be deferred to the end of construction providing significant savings on bonding.

Project Delivery Method

Potential project delivery methods include design-bid-build, design-build, or other public private partnership (PPP). The delivery method has not yet been confirmed: however, a design-bid-build method is assumed at this time for the floating bridge portion of the project.

Cost Escalation

Average annual escalation rates used in CEVP are three percent for construction and design activities and 10 percent for right-of-way acquisition. These rates are currently under review given the rapid escalation of construction materials and labor prices experienced over the past twelve months at WSDOT.

Special Projects Construction Site (SPCS)

The pontoons and anchors for a portion of the Evergreen Point Bridge need to be constructed offsite. WSDOT is in the process of selecting and conducting environmental review for a SPCS, which will serve long term construction needs associated with a variety of transportation projects. In 2005, WSDOT began identifying and evaluating potential locations for offsite construction. This evaluation will be done in a separate environmental document, and is expected to be complete in summer 2007.

A pontoon construction site needs to be a large, gated basin excavated next to a deep body of water. When a group of pontoons or anchors has been constructed, the pontoon construction site gates are opened, flooding the basin and floating the pontoons and anchors. The pontoons and anchors are then towed to the construction site. For the SR 520 Project, crews would float the constructed pontoons though the Hiram Chittenden Locks and into Lake Washington, where they would be anchored and connected to adjacent pontoons. Pontoons that cross the existing mid-span navigation channel on SR 520 would be the last ones floated into position in order to keep the navigation channel open for as long as possible.

What are the project assumptions?

What are the funding assumptions for the 4- and 6-Lane alternatives?

Full funding is assumed to be available for the design and construction of the project:

- Project costs assume an unconstrained cash flow from the following sources: secured federal funding, Nickel and TPA packages, a future regional funding package, tolling, and other sources to be determined.
- An estimated $700 million in bond revenue will be available in advance of bridge opening based on the sale of toll-backed revenue bonds.

- Inflation escalation is to 2013, approximate midpoint of construction.
- Year of expenditure (YOE) is 2013.
- Washington State sales tax deferral may be possible for this project.
- Project cost range includes $33 million in expenses to date.

What are the project schedule assumptions?

Preliminary design began in 2005 and general design schedule durations were developed during the 2005 CEVP workshop. The identified design schedule assumes the following:

- A preferred alternative will be selected by the end of 2006
- Environmental review, design and permitting of the SPCS occurs concurrently with the SR 520 Project
- 10 percent design plans will be developed for the preferred alternative.
- 30 percent design plans to final PS&E will be split into three logical packages (Seattle, Evergreen Point Bridge, and Eastside)
- Permitting will utilize the 30 percent design plans.
- The Record Of Decision (ROD) for the SR 520 Project and FONSI for the SPCS are needed to complete the permitting process.
- The ROD/FONSI and RTID funding will be obtained prior to purchase of the right-of-way. Right-of-way acquisition begins in 2006 with willing sellers.
- The ROD will be obtained prior to the contract ad date for the Evergreen Point Bridge

What is the project's implementation plan?

What is the design and construction schedule?

Exhibit 3-25 estimates the timing of the environmental documentation, permitting, engineering, right-of-way acquisition, and construction schedules associated with the SPCS and SR 520 Project. Construction of the SR 520 Project would take place over about 7 to 9 years for the 4-Lane Alternative and 9 to 11 years for the 6-Lane Alternative. Construction of the SR 520 Project is estimated to be complete by the end of 2017. Construction of the pontoons at the SPCS is critical to that schedule. At the time of the 2005 CEVP, a specific construction schedule was not yet developed for the SPCS. The most recent information estimates a duration of one year for construction of the site.

Key schedule assumptions include the following:

Special Projects Construction Site

- Preliminary engineering begins by the second quarter of 2006.
- The environmental review process is complete for the NEPA Environmental Assessment and a FONSI is obtained by the second quarter of 2007.
- Right-of-way acquisition is completed by the second quarter of 2008.
- Construction of the site is complete by the third quarter of 2009; pontoon construction begins by the fourth quarter of 2009.

SR 520 Project

- Preliminary engineering begins by the end of the third quarter of 2006.
- The NEPA environmental review process is complete and a record of decision on the Final EIS is obtained by the second quarter of 2008.
- All permits and approvals are obtained by the fourth quarter of 2011.
- Preliminary engineering is complete for the Evergreen Point Bridge by 2008; preliminary engineering of the SR 520 corridor is complete by 2011.
- Right-of-way acquisition for the Evergreen Point Bridge is complete by the fourth quarter of 2009; right-of-way acquisition for the SR 520 corridor is complete by the fourth quarter of 2011.
- Construction is complete and the new floating bridge opens by the fourth quarter of 2015.
- Full corridor construction is complete by the fourth quarter of 2017.

Exhibit 3-25. SR 520 Program Schedule Summary

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What are the construction phases?

Construction of the SR 520 corridor is split into three sections: the Evergreen Point Bridge (24th Avenue East in Seattle to the vicinity of 84th Avenue Northeast on the east side); the west side of the lake (in Seattle, from I-5 to 24th Ave. E.), and the east side of the lake (84th Avenue Northeast to 108th Avenue Northeast. Each of these sections can be built independent of the others. Construction is assumed to begin first at the Evergreen Point Bridge, followed by the east side construction, and then the west side construction.

Evergreen Point Bridge

Major components of the Evergreen Point Bridge would include the west approach, floating bridge, east approach structure, and at-grade roadway approaches required to connect to the existing highway, both west and east of the bridge. The east approach structure would be complete approximately one year after traffic begins using the floating bridge.

To safely construct the proposed 4-Lane and 6-Lane alternatives, WSDOT would build temporary work bridges next to the Portage Bay Bridge and a detour bridge in Union Bay and the Arboretum area. These temporary bridges would allow traffic to pass while construction is occurring.

West – 4-Lane Alternative

The critical path for construction in Seattle is the construction of the Portage Bay Bridge, followed by the completion of the I-5 interchange after the final traffic switch. Construction of the bridge is limited to allowable construction periods; in-water work is not allowed during periods of fish migration and spawning. Regulatory agencies have also expressed concerns about noise and light-related impacts to Endangered Species Act (ESA) species from dry-land work as well as pile driving.

West – 6-Lane Alternative and Options

The west phase includes construction from I-5 through Montlake Boulevard, the Pacific Street Interchange, and the work on Montlake Boulevard north of Husky Stadium, if the latter options are included. If the Pacific Street Interchange is built, the work near Husky Stadium would be coordinated with the Sound Transit University Link light rail station to minimize project construction activities and costs.

East – 4-Lane Alternative

The eastside critical path schedule is controlled by the construction of the lids and local street crossings. Maintenance of traffic during construction

of the lids will be critical for the construction schedule. Traffic maintenance necessitates using many small stages of construction to build the lids and roadway. The result is a construction duration of approximately four years.

The east phase includes all work from the tie-in just west of Evergreen Point Road to the east end of the project at Bellevue Way, as well as the auxiliary lane between I-405 and 124th Avenue Northeast.

East – 6-Lane Alternative and Options

The east phase includes all work from the tie in just west of Evergreen Point Road to the east end of the project near 108th Avenue Northeast, as well as the auxiliary lane between I-405 and 124th Avenue Northeast.

What is the mitigation strategy for the project?

Identification and selection of a preferred alternative will occur following issuance of the Draft EIS and the public comment period. WSDOT will further develop the engineering design for the project and begin to define project phasing, construction staging, and construction techniques. WSDOT will also request concurrence from state and federal natural resource agencies on the preferred alternative in order to streamline the process for future environmental permits and approvals. Additional environmental analysis, such as revising discipline reports to reflect updated project information, will be performed. More specific mitigation measures will be documented in the Final EIS and will form the basis of a mitigation plan that will be agreed upon by WSDOT, the affected communities, and resource agencies.

WSDOT is currently meeting with jurisdictions and agencies along the corridor, and this summer each jurisdiction and agency will follow their own internal process to confirm the alternative that they prefer. During the summer, mitigation discussions will also continue. In October, the project's Executive Committee will meet again to review the alternative preferences identified by the agencies and jurisdictions. The Committee will produce a report for the Secretary of Transportation discussing these recommendations. The Secretary will then make a recommendation to the Governor, prior to the state's selection of the preferred alternative for the project.

What are the project's main construction effects?

Construction Staging Locations

Construction staging areas are not confirmed yet, but WSDOT has identified several potential locations. In Seattle, possible areas for construction staging are at East Montlake Park, which is assumed to be temporarily acquired for the project; the WSDOT-owned peninsula near the Arboretum; the unused R.H. Thomson Expressway Ramps; and the closed Lake Washington Boulevard ramps. The Pacific Street Interchange option would use the University of Washington's E-11/E-12 parking lot as a staging area for construction of the new Union Bay Bridge and the Pacific Street/Montlake Boulevard intersection. On the Eastside, WSDOT anticipates that construction staging areas would lie within the project footprint. The existing westbound SR 520 HOV lane would be closed during construction and used as a staging area.

Utility Relocations

A number of utilities are located within the project footprint, and would have to be relocated and/or protected during construction to prevent damage and allow for future access. Because the 6-Lane Alternative is wider than the 4-Lane Alternative, more utilities would need to be moved or protected. Exact locations of all known utilities would be confirmed during the final design stage to determine relocation and protection needs.

During construction, some service disruption could occur if major utilities needed to be moved. Temporary closure of streets could result in the need to provide detours for emergency vehicles. WSDOT would work closely with affected utility and service providers to ensure that they are notified of potential disruptions and closures as soon as possible and that plans are in place for alternative access and service where necessary. No permanent effects on utility service would result from the project.

Neighborhood Effects

In both Seattle and Eastside neighborhoods under both alternatives, construction would result in increases in traffic congestion on local streets, route changes, increased noise and dust, and the loss of on-street parking. Transit service would also be affected on routes that use local streets.

Traffic Disruption - Disruption of traffic would be most severe in the Montlake neighborhood because of the three to five-year closure of the Lake Washington Boulevard ramps. This community would likely absorb most of the detour traffic, increasing congestion in an already congested area. This, in turn, could affect air quality and increase traffic noise. These effects would be more pronounced under the Pacific Street Interchange option because it would involve partial closure of Northeast Pacific Street. This option would also affect the University of Washington through construction activities and traffic congestion in the UW Medical Center

and Husky Stadium area. Careful management would be needed to avoid disruptions in access to the medical center and to stadium and campus events. WSDOT is currently working with the UW to determine methods of limiting these effects.

Construction Noise - The loudest construction-related activities are pile-driving and demolition of existing structures. State regulations restrict the noise from construction activities by imposing noise limits depending on type of activity and time of day. WSDOT would require contractors to abide by these regulations. In Seattle, the Roanoke/Portage Bay and Montlake neighborhoods would experience noise from pile-driving for construction of the Portage Bay Bridge and the Evergreen Point Bridge west approach. On the Eastside, construction effects would be greatest in neighborhoods near the Evergreen Point Bridge and the bridges over SR520. This is because construction activities would be most extensive in these areas—for example, pile-driving for the east approach of the Evergreen Point Bridge and the demolition and reconstruction of the bridges over SR 520.

Park Access and Use - Construction would also affect access to and use of Seattle and Eastside parks and trails adjacent to the right-of-way and/or those used for construction staging areas. The 6-Lane Alternative options would involve some different effects on parks than would the 6-Lane Alternative. Construction of the Pacific Street Interchange option would require periodic closure of facilities associated with the UW. Rerouting and reconstruction of the Points Loop Trail (Eastside) is likely to result in temporary closure of the trail for some length of time.

Navigation Channels

Construction of the 4-Lane and 6-Lane alternatives would take place within the open waters of Lake Washington and Portage Bay. None of these construction activities are expected to create more than minor temporary effects on navigational channels in these water bodies. However, two of the 6-Lane Alternative options—the Pacific Street Interchange option and the Second Montlake Bridge option—would use barges during new bridge construction. Construction for both of these options could require closing up to half the navigational channel within or to the east of the Montlake Cut for up to two weeks at a time.

Cultural and Historic

Neither build alternative nor any of the options would affect any known archaeological or ethnographic sites; however, it is possible that sites could be discovered during construction. WSDOT has obtained site information from Tribes with historical ties to the area and is also conducting subsurface investigations to reduce this potential. WSDOT will develop an inadvertent discovery plan to address the unexpected discovery of cultural resources during construction.

What are the project's main operational effects?

Neighborhood Traffic and Parking

Local streets and intersections near SR 520 are expected to see changes in traffic conditions by 2030 (the design year for the project). In Seattle and on the Eastside, the 4-Lane and 6-Lane alternatives would result in modest changes in traffic levels at local intersections. Two of the 38 study area intersections in Seattle would experience lower levels of service under the build alternatives, while traffic operations would improve from severely congested to moderately congested at five Seattle intersections under one or both alternatives. Two additional intersections would improve from being moderately congested to having little or no congestion. The most notable improvement would be at the Lake Washington Boulevard ramp intersection, where replacement of the existing stop signs with a signal would change 2030 conditions from severe congestion to almost none during both morning and afternoon peak hours.

Because of the changes the Pacific Street Interchange and Second Montlake Bridge options would create in traffic patterns, these options would differ in their effects on local intersections. Overall, the roadway capacity these options would add would improve traffic at Montlake area intersections that are congested today. This is especially true for the Pacific Street Interchange option. The new intersections associated with the Pacific Street Interchange would all operate with low to moderate levels of congestion.

On the Eastside, both build alternatives would improve the 2030 conditions from severe congestion to moderate congestion at the intersection of Lake Washington Boulevard Northeast and Northup Way during the afternoon peak hour. However, both alternatives would negatively affect the 92nd Avenue Northeast/SR 520 westbound off-ramp intersection during the morning peak hour. This intersection has a stop sign for off-ramp traffic only. The increased congestion would back up traffic on the ramp, but would not affect traffic flow on the freeway.

Transit

Bus **-** The 4-Lane Alternative includes a partial HOV lane (westbound on the Eastside) that would allow transit vehicles to bypass congestion along some sections of SR 520. However, because the lanes would not extend continuously throughout the corridor, transit vehicles would be caught in the remaining congestion along with other vehicles. This would reduce the benefit of taking transit, and would not provide incentives for people to change to transit from other modes of travel.

The 6-Lane Alternative's continuous HOV lanes would allow transit vehicles to bypass traffic congestion throughout the corridor. As a result, the 6-Lane Alternative would move people more efficiently than either the No Build or 4-Lane alternatives. Transit service along the SR 520 corridor would be more reliable under the 6-Lane Alternative because of the HOV lanes. The HOV lanes would be on the inside of the freeway, which would reduce existing conflict points where traffic entering or exiting SR 520 must merge into the outside HOV lane. The South Kirkland Park-and-Ride Transit Access options would create an additional benefit, providing a 15-minute travel time savings for transit riders between I-405 and 92nd Avenue Northeast.

Under all the alternatives and options in 2030, SR 520 is expected to carry more people in fewer vehicles. This reflects a shift from one- and two-occupant vehicles to buses and carpools as traffic congestion worsens. Today, approximately 11 percent of people crossing the Evergreen Point Bridge ride buses during an average peak period; by 2030, that number is predicted to rise to 25 percent. To meet the additional demand, the 4-Lane and 6-Lane alternatives would require 30 to 31 percent more bus trips than the No Build Alternative.

In developing the Pacific Street Interchange option, the project team assumed that, with the closure of the Montlake freeway transit stop, riders traveling eastbound across SR 520 would be required to catch the bus at a new location. In the University District, riders would continue to board buses near the intersection of Montlake Boulevard and Pacific Street (at the existing University transfer point). People who board at the Montlake freeway transit stop to travel east or west on SR 520 could also be affected; they could have to walk farther to access transit, or they may need to transfer.

At the Montlake freeway transit stop, riders are currently able to catch one of several routes for many destinations, giving them more route options and a high frequency of service. Removing the transit stop and providing exclusive bus service between SR 520 and the University District could result in fewer buses being available during any given hour. This would require riders to plan their trips with close reference to the bus schedules. People who currently use bus service that comes from I-5 and transfers at the Montlake freeway stop would be particularly affected by this change in routing.

Based on Sound Transit's current schedule for University Link (described below), WSDOT anticipates that the UW stop will be in place at or near the time when the SR 520 project is completed. This light rail service will provide improved access between downtown Seattle, Capitol Hill, and the University District. Bus riders on SR 520 would be able to transfer on

Pacific Street, near the light rail station, to make connections to these areas.

Light Rail Transit **-** The Seattle portion of the project area is slated for future development of the University Link segment of Sound Transit's North Link light rail project, a high-capacity transit line that will extend from downtown Seattle to Northgate. University Link includes a UW station located at Husky Stadium. All of the SR 520 alternatives and options would improve access to the new station because they would enhance mobility in the project area.

The effects of the Pacific Street Interchange option would differ considerably from those of other alternatives and options because the new Pacific Street ramp would pass above the southern portion of the light rail station area. The timing of the two projects' construction will need to be coordinated, which is feasible. There could also be a need to relocate bus stops and layover/transit facilities as a result of lowering the Montlake Boulevard/Pacific Street Intersection.

Bicycle and Pedestrian Traffic

Both the 4-Lane and the 6-Lane alternatives and the options would improve capacity, circulation, and travel times for bicyclists and pedestrians by providing a continuous bicycle/pedestrian path from west of the Montlake Boulevard Interchange to Northeast Points Drive in Kirkland. The 6-Lane Alternative would provide additional pedestrian/bicyclist facilities by creating new access across the lids in Seattle and on the Eastside. These new connections would increase accessibility to paths throughout the project area and neighborhoods.

Noise

The sound walls that are part of the project design would dramatically reduce noise throughout most of the SR 520 corridor—a very positive effect of the project. Under the 4-Lane Alternative, nearly 66 percent of the residences along the corridor that now approach or exceed the FHWA noise abatement criteria would have their noise levels reduced substantially after the project is built. Under the 6-Lane Alternative and options, the benefit would extend to about 69 percent of residences currently affected by noise. In addition to residences, the Washington Park Arboretum would experience noticeably reduced noise levels (in comparison to the No Build Alternative).

Within Seattle, the differences between the alternatives would largely be the result of the 6-Lane Alternative lids replacing existing bridges. The lids would block more noise, thereby causing a greater reduction. The greatest noise reduction benefits in Seattle would be in the Arboretum and Madison Park, followed by North Capitol Hill and Montlake.

Noise levels for the 6-Lane Alternative options would differ only slightly from the 6-Lane Alternative. With sound walls along the Pacific Street Interchange structures, no noise-sensitive locations on the UW campus would approach or exceed the noise abatement criteria.

On the Eastside, the number of residences that currently have noise levels that exceed the noise abatement criteria would be dramatically reduced with either of the build alternatives. The sound walls included in the project design would reduce noise to below the noise abatement criteria at 82 percent of residences currently affected by noise under the 4-Lane Alternative and up to 86 percent of the residences currently affected by noise under the 6-Lane Alternative. As in Seattle, the differences between the alternatives would largely be the result of the lids, which would provide more complete shielding than the sound walls at intersections near the bridges.

Navigation Channels

The 4-Lane and 6-Lane alternatives would change the options available for large recreational and commercial vessels to reach points in Lake Washington south of the Evergreen Point Bridge. All but the smallest sailboats would need to use the east navigation channel (70 foot clearance) to reach the south side of the bridge. Based on consultation with marina and commercial vessel operators, as well as research into the types of vessels now used on Lake Washington, the proposed navigational channels appear to be adequate to allow passage of all vessels currently using the lake. Exhibit 3-26 illustrates navigation restriction is Union Bay and Lake Washington.

The Pacific Street Interchange option would place a new bridge across Union Bay that would span the navigational channel east of the Montlake Cut with a vertical clearance of 110 feet. This clearance was selected because there are no vessels taller than 110 feet that travel regularly in this part of the lake. To improve safety for traffic on the bridge, WSDOT may request that the U.S. Coast Guard establish a new governing clearance of 70 feet for this area. With either a 110-foot or a 70-foot clearance, the bridge columns would be placed just outside the navigational channel to avoid blocking boat traffic.

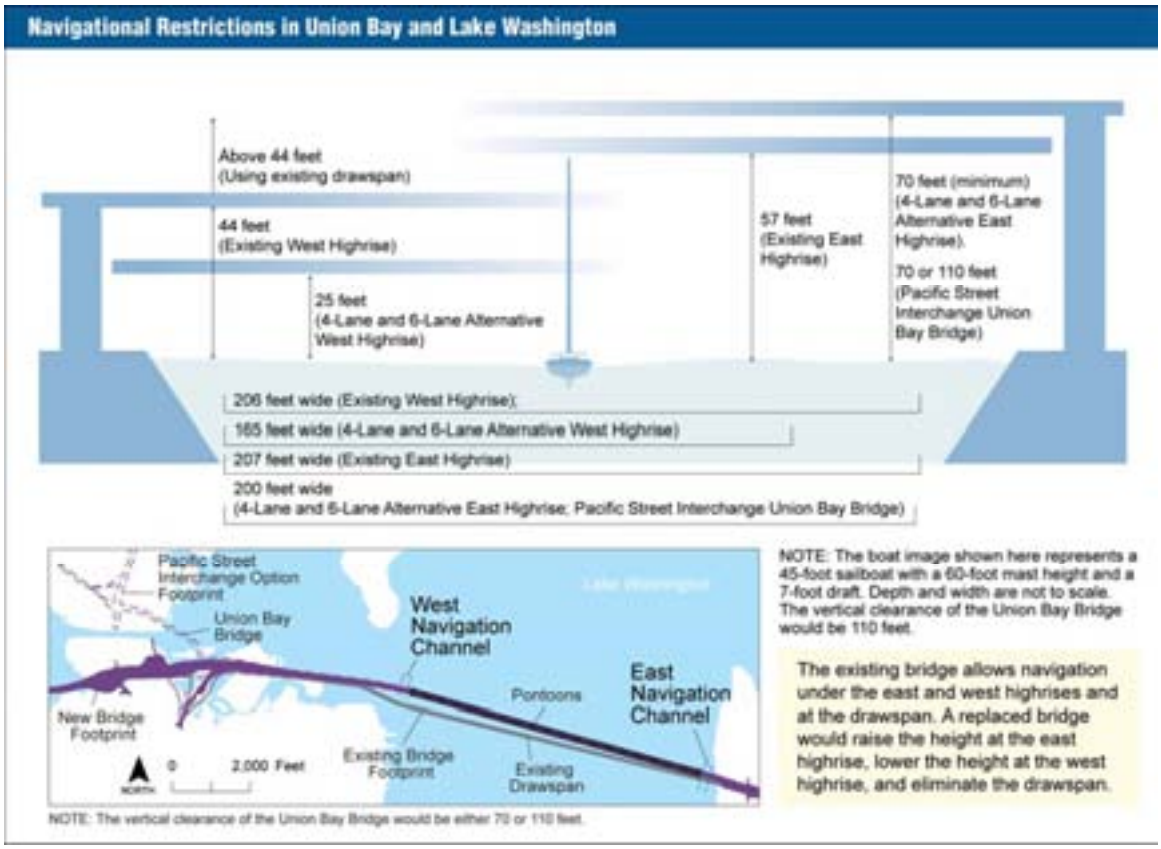


Exhibit 3-26. Navigational Restrictions in Union Bay and Lake Washington

Geology and Soils

The greatest project effect on geology and soils would be the use of 1.1 million to 1.6 million net tons of soil and rock to construct the roadway foundations and embankments. This amounts to between one and two percent of the annual production of aggregate in Washington State. In addition, 52,000 to 114,000 cubic yards of soil that is currently within the project right-of-way would need to be disposed of at an offsite location, either because it would not be suitable for reuse during project construction or because it would be excavated at a time and place that would make its reuse impractical.

Changes to topography would be relatively small because the widened roadway would follow the same corridor as the existing roadway; much of the roadway is on bridges, and the footprint has been kept as small as possible by the use of retaining walls. The Pacific Street Interchange option would have slightly greater effects on topography because it would lower Montlake Boulevard at its intersection with Pacific Street.

Hazardous Materials

Both build alternatives would permanently affect a number of sites that may be, or have been in the past, contaminated with hazardous materials. The 4-Lane Alternative would disturb four known sites in the Seattle project area and five known sites on the Eastside; the 6-Lane Alternative would disturb the same four sites in the Seattle project area and eight sites on the Eastside. The Pacific Street Interchange option could affect three additional contaminated sites along Montlake Boulevard.

Air Quality

As air quality regulations become more stringent, emissions from individual vehicles are expected to decline over time. This decline is reflected in the computer models that were used to predict total vehicle emissions related to the project and to assess whether air quality at existing high-traffic locations would become worse under future conditions.

In 2030, none of the alternatives or options would violate the National Ambient Air Quality Standards at any of the intersections, even though all of these intersections exceed the standards now. Improvements proposed by the project would enhance traffic flow and reduce idling time at these intersections—thus reducing motor vehicle emissions overall. The lids in the 6-Lane Alternative would also improve localized air quality because they would limit the transport of particulates and diesel exhaust.

Public Services

Overall, the project would enhance local agencies' ability to provide public services such as police, fire, and emergency medical. This is because the widened shoulders (under both alternatives) and HOV lanes (under the 6-Lane Alternative) would allow additional space for emergency vehicles to bypass traffic and reach the scene of an emergency. Reduced travel times in the corridor would also improve emergency response, and both alternatives would provide a number of enforcement areas along SR 520 where vehicles could be positioned to respond more quickly to accidents, stalls, and other incidents. The 6-Lane Alternative would improve emergency response time more than the 4-Lane Alternative because traffic would be moving faster through the corridor.

Visual Effects

Throughout the SR 520 corridor in Seattle, views for motorists would change dramatically because of the sound walls, which would block vistas of the water and the Cascade Mountains. In Seattle, views would change substantially both for users of SR 520 and for people looking at the highway and bridges from other locations. Most affected would be:

- Views in the vicinity of the Portage Bay Bridge, where the new bridge would be similar in construction to the existing bridge but larger, with sound walls on both sides.
- Views in the Montlake area, where the freeway would be widened to the north and thus remove buildings, parking, shoreline vegetation, and landscaping.
- Views of the Washington Park Arboretum, and the southeast part of the UW campus with the Pacific Street Interchange option, which would construct the new Union Bay Bridge.

On the Eastside, views would be affected throughout the SR 520 corridor, but the changes would mostly be apparent to people using the roadway and adjacent bicycle/pedestrian path. Sound walls from 8 to 20 feet high would be constructed on either side of SR 520, which would change the highway's appearance from a vegetated corridor to a wide, walled roadway. Tree screens that now protect houses close to the right-of-way would be replaced by sound walls. These walls would be screened with trees and shrubs in areas where there is sufficient right-of-way.

Community Cohesion

As previously described, SR 520 divides neighborhoods in Seattle and communities in the Eastside project areas. The build alternatives would not further isolate or physically separate the project area's neighborhoods and communities. The 6-Lane Alternative would partially reconnect the communities by providing lids where bridges now exist.

The project would not affect neighborhood population distribution. In Seattle, a maximum of three residences would be displaced; on the Eastside, maximum of two would be displaced. Both build alternatives would demolish the Museum of History and Industry (MOHAI); however, the museum is currently scheduled to move before the project would be constructed. Over time, the project could have a very slight effect on regional population distribution by changing large-scale patterns of access within the project area, although it would not create additional growth.

Recreation

In the Seattle project area, all build alternatives and options would require WSDOT to purchase portions of Bagley Viewpoint, McCurdy Park, East Montlake Park, and the Washington Park Arboretum. The 6-Lane Alternative with the Pacific Street Interchange option would require acquisition of the largest amount of park land. WSDOT would replace Bagley Viewpoint at a new location.

In the Eastside project area, the 4-Lane Alternative and the 6-Lane Alternative and Options would necessitate relocation and reconstruction of

the Points Loop Trail in certain locations; reconstruction of the trail would enhance safety and reduce noise because it would be located behind the sound walls along SR 520.

Land Use

The 4-Lane Alternative would displace 15 structures to make way for project construction: two residences, three businesses, one dock at the Queen City Yacht Club, eight buildings at the NOAA Northwest Fisheries Center, and MOHAI. The 6-Lane Alternative would displace the same number and types of structures as the 4-Lane Alternative. In Seattle, most of the land would come from the affected parks, while right-of-way on the Eastside would come mainly from residential properties.

Effects of the Pacific Street Interchange and Second Montlake Bridge options would be greater than those of the 6-Lane Alternative. The Pacific Street Interchange option would require 31.6 acres of new right-of-way, nearly half of it from the UW campus. It would affect four fewer parcels than the 6-Lane Alternative and would displace one less business. The Second Montlake Bridge option would require less land than the 6-Lane Alternative, but it would displace two more residences just south of the existing Montlake Bridge. The South Kirkland Park-and-Ride Transit Access – 108th Avenue Northeast option would require only 0.02 more acre than the 6-Lane Alternative.

Cultural and Historic Resources

Under the 4-Lane Alternative, three historic resources considered eligible for listing on the National Register of Historic Places (NRHP) would be demolished: two Eastside residences and the floating portion of the Evergreen Point Bridge. Under the 6-Lane Alternative, only the floating bridge would be demolished. The Second Montlake Bridge option would displace two additional residences that are part of the Montlake Historic District, which is potentially eligible for listing on the NRHP. All the build alternatives and options would displace MOHAI, which—although not eligible for the NRHP—is a contributing element of the Montlake Historic District. (Note: determinations of NRHP eligibility are still in process; the Final EIS will include the final determinations of eligibility for each property and district.)

Ecosystems

The 4-Lane and 6-Lane Alternatives and the 6-Lane Alternative options would affect ecosystem conditions and functions in a number of ways. Some of the effects would be beneficial—for example, removing unused highway ramps, replacing culverts to eliminate blockages for fish, providing stormwater treatment facilities where none now exist, and

adding sound walls. Some, such as filling or shading wetlands, would be negative.

Fisheries - Analysis completed for this project and consultation with federal resource agencies (NOAA Fisheries and the U.S. Fish and Wildlife Service) indicate that the project could cause negative effects on fish listed under the Endangered Species Act (ESA) and other aquatic species. These effects would result from wider but higher bridges adjacent to the existing corridor, and fewer but larger-diameter bridge support columns occupying a greater amount of lake bottom. Most of these columns would be in the shallow areas occupied by aquatic vegetation (Eurasian milfoil and white water lily).

Under the Pacific Street Interchange option, the new Union Bay Bridge would have large support columns (25 feet by 25 feet) that could provide additional habitat for predators of juvenile salmon within the migration corridor where all juvenile salmon pass out of Lake Washington. This bridge would also produce additional overwater coverage in the navigation channel. The Second Montlake Bridge option would cause new shading in the Montlake Cut adjacent to the shadow of the existing Montlake Bridge.

The project would extend the length of some Eastside culverts under SR 520 and remove riparian vegetation in certain areas. It would also add new impervious surface to the drainage basins in the project area. It would, however, improve water quality and fish habitat conditions because discharges from stormwater treatment facilities would meet or exceed federal and state water quality standards. This would be a distinct improvement over current conditions, where the water flows directly into streams and wetlands, carrying pollutants from the roadway surface.

Wetlands - Both build alternatives would involve filling and/or shading of wetlands and wetland buffers. In Seattle, these effects would occur to high-quality, lake fringe wetlands, primarily in the Arboretum/Foster Island area. Filling and shading of wetland effects would be greater on the Eastside; however, most of the affected wetlands would be smaller, lower-quality wetlands of types that are relatively common in the area.

The Pacific Street Interchange option in Seattle and the South Kirkland Park-and-Ride Transit Access –108th Avenue Northeast option on the Eastside would each have more wetland and/or buffer effects than the 6-Lane Alternative. The Bicycle/Pedestrian Path to the North option would reduce Eastside wetland effects compared to the 6-Lane Alternative.

Environmental Justice

Environmental justice is the concept that minority and low-income populations should not suffer disproportionately high and adverse effects from federal projects. Executive Order 12898 requires all federal agencies to evaluate their projects to identify potential effects on environmental justice populations.

Results of the evaluation show that the effect on low-income people from paying tolls to cross the bridge would be more severe than the effect on non-low-income people because the toll would be the same amount for all users, regardless of income. Choices for avoiding the toll include riding in a bus or carpool with three or more people or taking an alternative route across or around the lake, such as I-90. With mitigation measures in place to reduce adverse effects (see Mitigation Opportunities section, below), the project would not result in disproportionately high and adverse effects on minority and/or low-income populations.

What mitigation opportunities have been identified?

WSDOT's Environmental Procedures Manual provides guidance for complying with federal, state, and local environmental laws and regulations during all phases of transportation planning, design, environmental review, environmental permitting, construction, construction, and maintenance and operations for transportation facilities. Mitigation measures and concepts identified for project-related construction and operation effects will be consistent with policies and guidelines outlined in WSDOT's Environmental Procedures Manual.

Mitigation concepts and standard mitigation measures that would be implemented for the project are outlined in detail in the project's *Draft Environmental Mitigation Plan.* The following section discusses identifies additional opportunities WSDOT has to manage traffic flow in the SR 520 corridor, incorporate innovative mitigation concepts into the project design, and mitigate for long-term operational effects (mitigation for construction effects is identified above under "What are the project's main construction effects?").

Flexible Transportation Plan

A flexible transportation plan complements the physical improvements proposed for the project. It is a collection of strategies that WSDOT and other agencies would implement to enhance management of traffic flow in the SR 520 corridor and to provide alternatives to driving alone. The following major strategies have been identified for the flexible transportation plan:

- Incident response program – a program dedicated to motorist and incident scene safety through safe, quick responses and incident clearance.
- Transportation demand management – strategies and programs that focus on affecting people's travel habits to reduce single-occupancy vehicle trips.
- Intelligent transportation systems—various methods to enhance the transportation system and provide traveler information through advanced technology such as ramp metering, video camera monitoring, and signal control on arterial streets near highway interchanges.
- Transit service enhancements—potential service increases by local transit agencies to address estimated shortfalls in peak-period transit capacity along the project corridor.
- Bicycle and pedestrian improvements—improvements that are included in the project design.

The flexible transportation plan contains specific goals associated with implementing an incident response program and intelligent transportation systems, including elements that would require cooperation among a number of agencies and jurisdictions. WSDOT would facilitate a collaborative effort with these local jurisdictions, transit agencies, and other appropriate parties to establish an effective SR 520 corridor flexible transportation plan program. WSDOT would also facilitate efforts to find funding for elements of the flexible transportation plan that the agency cannot fund itself, such as funding for additional transit service.

Transit

WSDOT is actively working with Sound Transit to resolve potential design and operational conflicts at an early stage in the design process. Sound Transit is in the process of developing ST2, a plan for the next phase of high-capacity transit investments in the region. The Sound Transit Board has identified a study to evaluate potential high-capacity transit modes and routes across SR520 as a candidate project for possible inclusion in the ST2 plan. The study will provide information that could be used in potential future implementation of high-capacity transit on SR520.

Noise Reduction

Sound walls that would be constructed along much of the SR 520 corridor under all build alternatives would mitigate for increases in noise associated with increases in traffic on SR 520 that would occur over time. WSDOT is also reviewing quieter pavement types, including rubberized asphalt, to determine whether it can be used as a noise mitigation measure for projects, including SR 520. WSDOT has identified two testing sites for

hot mixed asphalt and is also looking to identify a test site location for a Portland cement concrete pavement or white pavement test site.

To begin using any type of quieter pavement as noise mitigation, WSDOT would need at least five years of successful testing, along with approval from FHWA and a commitment to regularly replacing the pavement to retain noise benefits. FHWA currently does not consider quieter pavement a noise mitigation option, so it is not included in the Draft EIS. WSDOT has not excluded this mitigation option for the future.

Geology and Soils

For both build alternatives, project designers would include a number of features to reduce potential geologic hazards. Areas where soils are liquefiable and/or prone to settlement or landslide—for example, the eastern end of the Portage Bay Bridge, the Evergreen Point Bridge west approach structure, and the Bellevue Way interchange area—would be stabilized during project design. These measures could include supporting the roadway on columns, improving soils beneath bridge columns, designing bridge columns to withstand seismic motion, or excavating areas of vulnerable soil and replacing them with stronger material.

Hazardous Materials

WSDOT would comply with Section 620.08 of WSDOT's Environmental Procedures Manual, which provides standard protocols for dealing with hazardous materials during construction.

Visual

WSDOT has committed to a number of actions to reduce the project's visual effects. These include establishing design guidelines for visual unity and consistency; revegetating, where possible, with compatible landscaping; constructing aesthetically pleasing walls, particularly in residential areas; and landscaping the 6-Lane Alternative lids to ensure a unified visual appearance.

Parks and Recreation

On the west side of the project corridor, SR 520 passes though Lake Washington's Portage and Union Bays, the Washington Park Arboretum, historic Lake Washington Boulevard, and one of Lake Washington's few remaining wetland systems. In spring of 2005, WSDOT met with a group of stakeholders that include representatives of the University of Washington, the Washington Park Arboretum, and the City of Seattle's Departments of Transportation and Parks and Recreation. In two workshops, the group discussed ways to minimize project effects on natural areas and open spaces, enhance these resources where possible,

and incorporate existing planning for these resources into the project design. Topics of discussion included:

- Restoration of Lake Washington shoreline that has been affected by past land uses
- Expansion of the Arboretum's plant collection into the WSDOT-owned peninsula
- Bicycle and pedestrian routes that would enhance Seattle's non-motorized transportation and provide access within the Arboretum
- Potential for a new building at the MOHAI site
- Replacing the MOHAI parking lot with a pond that would create wetland habitat and treat stormwater runoff from the bridge
- Trail creation
- Providing shoreline access for canoes and kayaks
- "Landscape scale" art beneath stretches of elevated roadway
- Replacing failing street trees
- Creating new formal gateways into the Arboretum using structures and/or plantings

Ideas generated through these workshops will serve as the basis for future discussion, planning, and design.

Land Use

WSDOT mitigates property acquisition and relocations in accordance with the federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. Property owners will receive compensation for their properties at fair market value, and relocation resources will be available to all displaced residents and business owners without discrimination. WSDOT will work closely with all displaced residents and businesses to find suitable replacement properties to accommodate their needs.

Cultural and Historic Resources

In accordance with Section 106 of the National Historic Preservation Act, WSDOT will mitigate the removal of land or structures on a site-specific basis. Where demolishing a historic property cannot be avoided, WSDOT would work with the State Historic Preservation Officer (SHPO) during the NEPA process to determine the best methods of mitigation, which could include documenting the site and its history through photographs and written records. WSDOT will offset visual intrusion on historic properties by creating landscaped buffers wherever possible. WSDOT will complete Section 106 compliance by the time of the Final EIS, which will include a memorandum of agreement between WSDOT, FHWA, the SHPO, and affected Tribes on how mitigation will be accomplished.

Stormwater Treatment

The primary types of stormwater treatment facilities proposed for the SR 520 project are wet vaults and stormwater treatment wetlands, depending upon where the stormwater flows will be discharged and how much space is available. Exhibits 3-27 and 3-28 identify types of stormwater treatment facilities.

Wet Vaults: Wet vaults collect sediments on the bottom of a vault or pond, where maintenance workers can clean them out on a regular basis. When it's necessary to protect receiving waters, the wet vault can be sized to slow down the discharge and store the excess stormwater for release over a longer period of time.

Exhibit 3-27 Stormwater Treatment Wetland

Stormwater Treatment Wetlands: Stormwater treatment wetlands are considered an enhanced treatment best management practice (BPM) because, along with sediments, they remove some of the dissolved metals from stormwater. They use a two-step process. The first step collects sediment and pollutants at the bottom of the pond like a wet vault does. During the second step, water flows into the wetland, where wetland vegetation filters and breaks down pollutants.

In the Union Bay basin, up to 15 small treatment wetlands would be integrated into the design and construction of the bridge columns. This innovative approach would provide the same components and functions as a typical stormwater treatment wetland, but in a nontraditional location. Treated stormwater would flow from submerged outfalls at each column into Lake Washington. In addition to this treatment, periodic cleanings of the bridge approach with a high-efficiency vacuum sweeper would collect pollutants from the roadway before they get into the stormwater.

Stormwater facilities for the Second Montlake Bridge option would be different. The existing Montlake Bridge has grated decking, so

precipitation falls directly off the bridge into the Montlake Cut. The second bridge would be built with an impervious deck surface that would convey stormwater off the bridge for detention treatment.

Exhibit 3-28. Stormwater Treatment Facility

Ecosystems

As described above under operational effects, removing unused highway ramps, replacing culverts to eliminate blockages for fish and providing stormwater treatment facilities where none now exist would benefit project area ecosystems. All negative effects on ecosystems, as well as on ESA-listed and other aquatic species, would be fully mitigated to comply with applicable laws and with WSDOT's policy of causing no net loss in wetland functions and values. Specific details will be developed when WSDOT consults with, or submits permit applications to, these agencies.

Environmental Justice

Possible mitigation measures that have been identified to reduce the adverse effects of the toll on the SR 520 Evergreen Point Bridge include:

- Providing inclusive and early outreach on the increased costs of choosing to drive across Lake Washington, the technology used to collect tolls, and how to receive transportation assistance through existing programs and organizations.
- Providing support to providers of transportation services (Hopelink, King County Metro, Sound Transit, and others) in the form of HOV lane access, toll subsidies, or financial assistance.
- Developing toll collection methods that allow electronic tolling methods to be accessible to people at all income levels and to those without credit cards or bank accounts.
- Monitoring requests for assistance to determine whether or not the measures listed above are avoiding or mitigating the potential disproportionately high and adverse effects.

What mitigation is required?

The National Environmental Policy Act (NEPA) and Washington State Environmental Policy Act (SEPA) require identification of effects and mitigation to minimize significant adverse project effects. Federal, state, and local laws and regulations also specify certain levels of required

mitigation for construction and/or operational effects. Project compliance with these laws and regulations is discussed below under the headings "How is the project complying with environmental regulations?" and "What permits and approvals will the project require?"

How will mitigation decisions be made?

As is typical with major projects such as this, WSDOT will continue to update and refine mitigation measures for the project as the EIS process and project engineering efforts move forward. As described above under the section titled "What is the mitigation strategy for the project?" this will allow WSDOT to consider public comments, perform further engineering on a Preferred Alternative, continue public outreach and coordination with other agencies and jurisdictions. Mitigation commitments will be included in the Final EIS and ROD for the Project. Final decisions on mitigation will be incorporated in permits and approvals for the Project.

What is the permitting strategy?

The SR 520 Project is currently in the 10 percent design and environmental review phases. The approach to permitting will be an ongoing effort and strategies identified for moving the permit process forward will be flexible and adaptive.

The SR 520 Project has involved various agencies early in the environmental review process. The Signatory Agency Committee (SAC), a group of federal and state regulatory agencies responsible for integrating aquatic resource permit requirements with the NEPA and SEPA EIS processes, is participating in EIS review process.

The cooperating agencies that are participating in the EIS review process are:

- Federal Transit Administration
- U.S. Army Corps of Engineers
- U.S. Coast Guard
- Puget Sound Clean Air Agency
- Puget Sound Regional Council
- King County
- City of Bellevue
- City of Clyde Hill
- Town of Hunts Point
- City of Kirkland
- City of Medina
- City of Seattle

- Town of Yarrow Point
- City of Mercer Island
- City of Redmond

The SAC agencies that are participating in the review process of the EIS are:

- NOAA Fisheries
- U.S. Army Corps of Engineers
- U.S. Environmental Protection Agency
- U.S. Fish and Wildlife Service
- Washington Department of Ecology
- Washington Department of Fish and Wildlife

To expedite the delivery of permits and approvals, WSDOT maintains staff at several agencies to facilitate the approval of permits for transportation projects. WSDOT personnel work closely with agency staff from the Corps, Ecology, WDFW, and others to ensure that regulatory requirements are met and mitigation plans are implemented and monitored.

The SR 520 Project team is considering additional strategies to achieve efficiency and action in the permitting process, including:

- Formation of an interagency working group, or permit team, made up of WSDOT liaison staff at the various permitting agencies and regulatory staff from some jurisdictions; this group would identify permits required for the project and develop strategies to obtain them.
- Use of WSDOT liaison staff for review and approval of permits for SR 520
- Dedication of WSDOT staff time at the various resource permit agencies to work on this project

What permits and approvals will the project require?

The SR 520 Project will require multiple federal, state, and local permits and approvals for the construction and operation of this project. Exhibit 3-29 describes the currently identified permits and approvals.

Exhibit 3-29. Summary of SR 520 Project Permits and Approvals

Issuing Agency	Permit/Approval	Trigger Activity
Federal Permits and Approvals		
U.S. Army Corps of Engineers	Clean Water Act Section 404	Placing a structure, excavating, or discharging dredged or fill material into waters of the United States.
U.S. Coast Guard	Rivers and Harbors Act Section 9	Construction or modification of bridges over certain

Issuing Agency	Permit/Approval	Trigger Activity
		navigable waters.
U.S. Army Corps of Engineers	Rivers and Harbors Act Section 10	Placement of structures and discharge of material into navigable waters of the United States.
U.S. Fish and Wildlife Service and NOAA Fisheries	Endangered Species Act, Section 7/Magnuson Stevens Act	Activities funded, authorized, or carried out by federal agencies.
Federal Highway Administration	Transportation Act Section 4(f)/Section 6(f)	FHWA actions affecting significant park and recreation lands, wildlife and waterfowl refuges, and historic sites.
Advisory Council on Historic Preservation	National Historic Preservation Act, Section 106	Activities affecting historic resources (may be direct or indirect effects).
Washington Dept of Archaeology and Historic Preservation (authorized agency)	National Historic Preservation Act, Section 106	Activities affecting historic resources (may be direct or indirect effects).
State Permits and Approvals		
Washington Dept of Ecology	Clean Water Act Section 401 Certification	Section 401 of the Clean Water Act, requires that any applicant for a federal permit, which involves an activity that may result in a discharge to State waters, obtain a water quality certification from the State (in this case, the State Dept of Ecology).
Washington Dept of Ecology	Coastal Zone Management Act Certification	Federally funded or permitted projects that are in the coastal zone or affect coastal uses or resources must comply with CZMA.
Washington Dept of Ecology	NPDES Construction Storm water Permit	Projects that disturb (e.g., clearing, grading, etc.) one or more acres of soil.
Washington Dept of Ecology	Underground Storage Tanks	Removal or abandonment of underground storage tanks that could potentially leak contaminants such as gasoline.
Washington Dept of Fish and Wildlife	Hydraulic Project Approval	Activities that use, divert, obstruct, or change the natural flow or bed of state waters.
Washington Department of Natural Resources	Aquatic Lands Use Authorization	Activities that take place on state-owned aquatic lands.
Regional and Local Permits and Approvals		
Puget Sound Clean Air Agency	Clean Air Act Air Quality Conformity	Federally funded transportation projects may not contribute to air quality degradation.
City of Medina	1. Environmentally Critical Areas Approval (CAO) 2. Shoreline Conditional Use Permit 3. Street Use Permits 4. Noise	1. Work in environmentally sensitive areas. 2. Work within 200 feet of ordinary high water mark where use is not classified or permitted, or is prohibited in shoreline environment. 3. Use, occupation and/or construction in the City right of way, including tree removal and utility relocation. 4. Generally required for nighttime and weekend construction noise, or when a project will otherwise exceed allowable noise limits.
City of Kirkland	1. Environmentally Critical Areas Approval (CAO)	1. Work in environmentally sensitive areas. 2. Work on private property. Drainage approval is

Issuing Agency	Permit/Approval	Trigger Activity
	2. Land Surface Modification (LSM) Permit 3. Public Works (PUB) Permit 4. Noise Variance	required for projects with 750 square feet or more of new or replaced impervious surface or land disturbing activity. Grading review is required when the volume of earth moved would exceed 100 cubic yards. Not required if working entirely in WSDOT right of way. 3. All construction activity and traffic control within City of Kirkland right-of-way. All connections to and relocations of City of Kirkland utilities. 4. Generally required for nighttime and weekend construction noise, or when a project will otherwise exceed allowable noise limits. Low and high voltage wiring within Kirkland City limits
City of Bellevue	1. Environmentally Critical Areas Approval (CAO) 2. Right of Way Permits 3. Noise Exemption 4. Noise Variance	1. Work in environmentally sensitive areas. 2. Use, occupation and/or construction in the City of Bellevue right of way, including tree removal and utility relocation. 3. Generally required for nighttime and weekend construction noise, or when a project will otherwise exceed allowable noise limits. 4. Also based on sensitive receptors.
Town of Hunts Point	1. Shoreline Permit 2. Construction Permits The Town does not have a specific Critical Areas Permit	1. Any work within the shoreline jurisdiction, including off-site improvements associated with the 520 corridor, would require a substantial development permit, and may require a variance or conditional use permit. In the absence of a Critical Areas Ordinance permit, the Shoreline Management Act also covers some aspects of what would normally be covered under local jurisdictional CAO review. 2. Construction vehicles crossing WSDOT right of way, construction staging outside of right of way, construction impacts outside of right of way, tree removal, and street use.
Town of Yarrow Point	1. Shoreline Permit 2. Construction Permits The Town does not have a specific Critical Areas Permit	1. Any work within the shoreline jurisdiction, including off-site improvements associated with the 520 corridor, would require a substantial development permit, and may require a variance or conditional use permit. In the absence of a Critical Areas Ordinance permit, the Shoreline Management Act also covers some aspects of what would normally be covered under local jurisdictional CAO review. 2. Construction vehicles crossing WSDOT right of way, construction staging outside of right of way, construction impacts outside of right of way, tree removal, and street use.
City of Seattle	1. Environmentally Critical Areas Approval (CAO) 2. Shoreline Conditional Use Permit 3. Street Use Permits 4. Noise Variance	1. Work in environmentally sensitive areas. 2. Work within 200 feet of ordinary high water mark where use is not classified or permitted, or, is prohibited in shoreline environment. 3. Use, occupation and/or construction in the City of Seattle right of way, including tree removal and utility relocation. 55 individually permitted uses

Issuing Agency	Permit/Approval	Trigger Activity
		are administered by SDOT under this general heading. Only five of the most likely required permits are identified here. 4. Generally required for nighttime and weekend construction noise, or when a project will otherwise exceed allowable noise limits.

How is the project complying with environmental regulations?

The Draft EIS release this summer will evaluate environmental effects of the project's two build alternatives and options as well as for the No Build Alternative. After the public comment period, the team will produce a Final EIS.

NEPA/SEPA regulations require that mitigation measures to reduce or eliminate adverse environmental effects be identified as part of the environmental review process. Many mitigation measures will be incorporated into the ROD issued by FHWA. Project permits will identify specific mitigation measures that will be implemented as part of project construction. Independent inspectors from permitting agencies will inspect the project.

The project will develop a commitment tracking database to ensure that mitigation measures, commitments made to resource or other permitting agencies, and any other environmental or design commitments are being implemented. This database will include commitments generated through other processes, including right-of-way acquisition, design, and maintenance.

The project will form a compliance team to ensure that all environmental commitments are logged and tracked. The compliance team will also determine which commitments are the contractor's responsibility and which are the project engineer's responsibility (such as notification and monitoring requirements). The compliance team will assist the permitting effort by translating permit conditions into language that is "biddable" by the contractor, buildable in practice, and enforceable in the form of a standard specification, a general special provision, a standard plan, or a special provision within the contract.

The major laws and regulations with which the SR 520 Project must comply include:

Federal Regulations:

- Clean Air Act (CAA) of 1970
- Clean Air Act Amendments (CAAA) of 1990
- Clean Water Act (CWA)
- Coastal Zone Management Act (CZMA) Certification
- Comprehensive Environmental Response, Compensation and Liability Act (CERCLA)
- Department of Transportation Act, Section 4(f)
- Endangered Species Act (ESA)/Magnuson Stevens Act
- Environmental Justice Executive Order and related guidance
- Historic Preservation Act Section 106
- Marine Mammal Protection Act
- National Historic Preservation Act (NHPA)
- Native American Graves Protection and Repatriation Act (NAGPRA)
- Resource Conservation Act and Recovery Act (RCRA) and Hazardous Waste Amendments
- Rivers and Harbors Act Sections 9 & 10

State Regulations:

- Archeological Sites and Resources Act
- Clean Air Washington Act
- Water Pollution Control Act
- Dangerous Waste Regulations
- Growth Management Act
- Indian Graves and Records Act
- Model Toxics Control Act
- Noise Control Act
- Shoreline Management Act
- Sediment Management Standards
- Underground Injection Control
- Underground Storage Tanks

Local Regulations:

- As required by municipal codes for work outside WSDOT right-of-way
- As required for work within WSDOT right-of-way for state laws implemented at the local level.

What is the project delivery strategy?

How are budget and schedule controlled?

The SR 520 Project team has implemented an integrated scheduling system that will provide timely project status and management information. The tool, Primavera P3 e/c, provides project managers information to monitor and manage archives and deliverables to ensure on-time project delivery. Refer to the section below "How is Performance Assessed and Reported?" for further discussion on linking the scope of work, schedule and budget, and the proposed procedures to control them.

What quality assurance/quality control procedures are in place?

The Quality Control/Quality Assurance Policy for the SR 520 Project is part of the Project Management Plan referenced in this section. This QC/QA plan reflects the policies and procedures that have been in place since 2003 and are appropriately applied to a project in the conceptual design and environmental assessment phase of project development.

As the project transitions from this phase into the design and construction of a preferred alternative; an updated Quality Management Plan outlining the QC/QA procedures and documentation process will be prepared and adopted for use by the design and construction team.

Goals

The goals of the SR 520 Quality Management Plan for the design and construction phase will verify:

- All work meets applicable adopted design and construction standards
- All work follows accepted engineering standards
- The project complies with all commitments documented in the planning process, resulting in a record of decision and permit conditions
- The project is constructible, cost estimates and planning schedules are using reasonable procedures to establish construction cost estimates, and construction durations
- All QC/QA steps are available for review, if necessary

Procedures

The following items will be included in the Quality Management Plan:

- Requirement for early and frequent coordination with reviewing and approving agencies and groups
- Internal QC by design teams of all documents prior to every review submittal
- Documentation of all comments, resolution, and implementation
- Audit of internal QC to verify that the document is ready for external review
- Documentation of all external comments, resolution, implementation, and concurrence by commenter
- Interdisciplinary reviews to make certain all disciplines have been properly coordinated
- Checklists to include all unique environmental or permit requirements to verify that they have been met by the design
- Independent constructability reviews; including cost and schedule reviews by individuals experienced as contractors
- QC/QA procedures (internal QC review, audit, external QC review, QA audit) will apply to all products—not just design drawings
- Filing procedures so all QC/QA documents can be recovered and reviewed as necessary
- Regular reviews of Quality Management Plan to update as needed

What document control procedures are place?

The project team has implemented a document control process that provides the team with timely information through a paperless system. The SR 520 Project has implemented Primavera's Expedition software that provides the structure for capturing and managing all project documents.

Once a document is delivered to the project it is date stamped, file coded, scanned into the database, assigned a responsible individual, electronically distributed, and the status of documents is reported. Procedures have been implemented that delineate how each type of document is processed and closed. It is the responsibility of the project management team to ensure that documents are processed and responded to within the procedures and timeframes that have been established.

How does configuration control and change management occur?

Configuration control is defined as managing, documenting, and gaining the proper approvals for any changes to the initial highway configuration and other features of SR 520. This initial configuration will be adopted in the Final EIS and further defined in any local and resource agency agreements and project permits. Configuration control is essential to

assure that all parties working on the design and ultimately, construction of the project, are working to the current project definition. In addition, configuration control provides the mechanism by which project changes are reviewed, managed, and incorporated after approval.

Goals

The goals of configuration control team are to:

- Work collaboratively with local agencies, resource agencies, and FHWA to establish an initial configuration that is consensus driven to improve the operation and safety of the facility while minimizing the impact on the adjacent communities and environment.
- Properly document the approved initial configuration of the SR 520 replacement facility.
- Establish procedures for documenting proposed changes in the initial configuration, review of the proposed changes, and obtaining approval or rejection of the proposed change at the appropriate approval level
- If approved, documentation is implemented that the change is properly incorporated in the updated configuration, and distributed to all appropriate team members, both internal and external.

Procedures to be Adopted or Developed

Many of these procedures are already in place as standard steps in the development process WSDOT uses for all highway improvement projects. The WSDOT Design Manual sets responsibilities for different actions, which are supplemented by the Stewardship Agreement with FHWA. The following would be accomplished prior to establishing the initial configuration:

- Identify potential corridor wide deviations that will impact the footprint of the facility; review with the Assistant State Design Engineer, and if general agreement is received, prepare deviation documents for processing and approval.
- Receive approval of all geometric elements of the proposed initial configuration
- Receive approval of type, size, and location of all structural elements along the corridor
- Reach agreements on reasonable mitigation requirements to be included as a part of the initial configuration
- Establish guidelines for corridor unity and application of aesthetics of neighborhood areas. Examples include: urban design, wall treatments, bridge treatments, and landscaping concepts

- Reach agreement on type and placement of stormwater treatment facilities and concepts

The following will be undertaken after establishing the initial configuration:

- Document the source and reason for the proposed change in the project configuration; include data needed for the decision-making process and identify the level needed to approve and/or reject the change.
- Initiate a process for review and approval/rejection of a proposed change; include staff involvement and time frames required.
- Initiate a process for documentation of approval/rejection and notification of source of requested change.
- If approved, implement the process for change, verify it has been applied properly and completely, and include QC/QA activities.
- Implement a process for final documentation of change and distribution of changed elements to the team for incorporation into the project design.

How is performance assessed and reported?

The SR 520 Project has implemented an integrated cost and scheduling system that provides the team with timely information for proactive management. The tools Prism Cost Management and Primavera P3 e/c, provide trending analysis to help project managers forecast the future. This early identification of any developing issues and trends in their projects that need attention to minimize cost and schedule impacts. Further, the project is able to communicate with confidence the status and outlook of project elements.

The SR 520 Project has implemented the earned value method as the basis for project reporting. The earned value method is the process of developing pre-defined rules for updating and reporting cost, work progress, and schedule progress. The development and implementation of these rules and standard practices promote the consistency and quality of reporting across all the projects and provide reliable data for better management.

Performance measurement and reporting start when the scope of work is developed for contracting purposes. The cost/schedule engineers are an integral part of the management team as the scopes of work and metrics are developed. The scope of work is the basis for the cost and schedule development. Upon execution of a contract, the consultants, contractors, and WSDOT provide monthly progress data for incorporating into the cost/schedule management system. Progress and performance meetings

are held each month with staff to review and report the performance of each contract. This detailed information is then compiled and issued as a monthly progress report to the WSDOT Urban Corridors Office. A performance meeting is held on a quarterly basis with WSDOT Headquarters to report progress and performance.

How would construction be contracted?

WSDOT has a long history of contracting construction projects using the design-bid-build (DBB) contracting method. DBB is the most common method of contracting highway construction projects in Washington.

In 1998, WSDOT was authorized by the legislature to use design-build (DB) for the first time. WSDOT currently has the authority to use DB for projects with an estimated construction cost of $10,000,000 or more. The legislature authorized the use of DB on six pilot projects with a cost range of $2,000,000 to $10,000,000. DB projects are now under construction on I-5 in Everett and on I-405 in Kirkland.

WSDOT has an on-going evaluation program of the DB contracting method with a focus on best practices in deciding on and implementing DB. The "Guidebook for Design-Build Highway Project Development" June 20, 2004, provides an understanding of WSDOT policies and recommended procedures to be used in the decision and planning of DB at the project level. Research on lessons learned is ongoing.

Due to size and varying complexities, implementation of the SR 520 Project would involve several construction contracts. The SR 520 team would conduct a detailed study to identify the most appropriate construction phasing by location, type of work, and contracting method for each project. The factors to be considered in making contracting decisions for SR 520 would include:

- Funding program
- Regulatory/legal constraints
- Size/estimated cost of contract(s)
- Schedule requirements and benefits
- Traffic management opportunities and constraints
- Technical risk
- Surety and capacity of contractors/JV's.

The SR 520 project would begin conducting the contracting evaluation during the summer of 2006, concluding shortly after the designation of the preferred alternative and the funding program.

In addition, the legislature has also authorized the use of PPPs for the design, construction, financing, and operation of toll highway facilities. Once a ROD is reached on a preferred alternative for SR 520, it is possible that all or a portion of the project could attract interest from the private sector in the form of possible PPP arrangements.

How would construction be managed?

WSDOT will develop a specific construction management plan for each SR 520 construction and procurement contract. Major variables to be considered in development of that program are:

- Size of contract
- Type of contract – DBB, DB, or material procurement
- Payment methods – lump sum by finished product or measured pay by material quantity
- Coordination requirements with other contracts in the project and local agencies
- Assessment of the quality control vs. quality assurance approach for each contract

Contractor Responsibilities

The contractor would be responsible for methods and means of construction, construction site safety, and meeting the standards of quality that are established for each project as well as the detailed planning and execution of the construction schedule to meet the overall schedule requirements of the project. The contractor would also be responsible for timely communication regarding issues and changes to the project, as referenced in contract documents.

WSDOT Responsibilities

WSDOT would be responsible for construction administration and oversight to assure that the technical quality, environmental compliance, traffic management, agency coordination, and public communications needs are fulfilled. The agency must approve contractor progress payments and final payment upon satisfactory completion of the work. The agency would work with the contractor to address changes as expeditiously as possible. WSDOT may perform construction administration services with in-house resources, consultants, or a blended team of staff resources.

How will traffic be managed during construction?

The SR 520 project assumes that traffic in the corridor will be maintained during construction. Night closures and occasional weekend closures will be allowed. At-grade portions of the highway are assumed to use standard widening techniques while traffic is still using the corridor. The structures across the Portage Bay and the Evergreen Point bridges provide obstacles to maintaining traffic during their replacement. The SR 520 Construction Staging Techniques Memorandum (June 2005) and the Final SR 520 Construction Staging and Techniques Memorandum for the 6-Lane Alternative Options (December 2005) document how the corridor could be constructed while maintaining traffic in the corridor. The following sections summarize the techniques used to maintain traffic.

I-5/SR 520 Interchange

The I-5 interchange would be constructed in three sections: the connection to the express lanes, the northbound I-5 to eastbound SR 520 connection, and the southbound I-5 to eastbound SR 520 connection. The proximity of the Portage Bay Bridge to local street crossings on both the west and east ends of the bridge necessitates that the I-5 interchange should be constructed at the same time as the Portage Bay Bridge. Traffic switches in the vicinity of the I-5 interchange must be coordinated with construction of the new Portage Bay Bridge. Traffic cannot be moved to a new Portage Bay structure until the local street crossings are replaced and the at-grade roadway is constructed.

Portage Bay Bridge

The Portage Bay Bridge is assumed to be constructed in two halves. Work bridges would be installed for the contractor to place bridge foundations and superstructure. The north half of the bridge would be located outside the footprint of the existing bridge and constructed first. Traffic would be moved first to the north half, the existing structure would be demolished, and then the south half would be constructed.

Montlake Blvd

Similar to I-5, the Montlake Boulevard crossing must be constructed to coordinate traffic switches with the Portage Bay structure.

West Approach

The proposed west approach structure would be located above the existing bridge. The construction staging memo documents alternative methods of constructing the west approach structure while traffic is maintained in the corridor. Three alternatives were reviewed and one was chosen that provides the best safety of the traveling public, was the most efficient for construction duration and would be the most responsive to ESA-related

environmental concerns. This option would provide a four-lane detour bridge south of the existing structure that connects between the land near Montlake to the s-curve in the west approach structure near the floating bridge. The contractor would use the existing bridge as a work bridge to construct the entire width of the new bridge at once. The Lake Washington Boulevard ramps would be closed during the duration of the construction of the west approach structure, a period of approximately five and a half years.

Evergreen Point Bridge

The new Evergreen Point Bridge would be located north of the existing bridge. This allows the new floating section to be moved into place and anchored without disturbing the existing bridge.

East Approach

The east approach must be constructed in two halves, because the south half of the approach is located above the existing structure and would interfere with traffic. After the north half of the approach is complete, traffic could be shifted over to the new west approach structure of the floating bridge and north half of the east approach. This would allow the existing east approach to be demolished and the south half of the east approach structure to be constructed.

Eastside

The typical highway widening techniques would be used on the Eastside to shift traffic within the footprint to provide the space needed for construction. The north half is constructed first, followed by the middle of the corridor, and the south half is constructed last. Due to the limited shoulder space available in the existing corridor, the westbound HOV lane is assumed to be closed to make additional space available during construction.

There are limited opportunities to provide detour routes for local street crossings. Construction techniques must be used to maintain traffic on the local streets during replacement of the local street structures. This project has assumed that parallel bridges would be constructed so traffic can be moved off of the existing bridges. Then the bridges could be demolished and replacement bridges constructed in the same location with proper span arrangement for the proposed highway corridor. Several techniques are available: build temporary structures, build portions of the lid, or build the proposed structure off-line and then roll it to the final location. Specific techniques have not been selected.

What is the financial plan for the 4- and 6-Lane alternatives?

The draft finance plan for the build alternatives are provided as a separate document and can also be found in a separate document, following this section. The plan addresses the following questions:

- What is the purpose of the Expert Review Panel funding review?
- How does the financing of the Viaduct and SR 520 projects fit into the regional picture?
- How much money do the projects need (e.g. what are the "uses")?
- Where will the money come from?
- How are sources and uses balanced?
- What will be done to manage uncertainty about revenue amounts or timing?
- After the project has been completed, how will operations and maintenance be covered?

What legislators are involved in the SR 520 Project?

State legislators from the 43rd and 46th districts represent Seattle neighborhoods adjacent to the project corridor and legislators from the 48th district represent the cities and towns on the Eastside. Legislators from these districts occupy leadership positions in the State Senate and House of Representatives, including Speaker of the House, Chair of the House Transportation Committee, Chair and Vice Chair of the House Finance Committee, and Vice Chair of the Senate Transportation Committee.

What agencies, jurisdictions, neighborhoods, and special interests are affected by these projects and what do they care about?

Agencies

Sound Transit is a project co-lead, and the agency's interests are described below. King County Metro (Metro), is also an agency involved in the SR 520 Project.

Sound Transit

Sound Transit Express buses currently use the SR 520 corridor. The agency is also in the process of finalizing a plan to include HCT across

Lake Washington on I-90. Sound Transit considers SR 520 a longer-term priority for cross-lake HCT investment and has included a study of alternatives for the eventual implementation of HCT on SR 520 as part of its proposed Phase 2 planning.

King County Metro (Metro)

Metro operates the majority of the existing bus service on SR 520 and is primarily interested in improving transit access and routes, both generally and as mitigation during construction activities.

Jurisdictions

The SR 520 corridor passes through seven jurisdictions: Seattle to the west side of Lake Washington, and Medina, Hunts Point, Clyde Hill, Yarrow Point, Kirkland, and Bellevue on the Eastside. In addition, several Tribes are also stakeholders in the project.

City of Seattle

Seattle has been involved in SR 520 Project decisions since the current project began in 2000. The City of Seattle has expressed their goal that any alternative would be developed to limit impacts on the Arboretum and Seattle neighborhoods, while also limiting single-occupancy vehicle traffic into and around Seattle.

In 2005, the Seattle City Council passed an ordinance that included recommendations regarding the development of the SR 520 Project. This ordinance did not identify a preferred alternative, however it did articulate four key guiding principles for the project: the importance of transportation connectivity, neighborhood livability, ecological sustainability, and public involvement.

In 2003, legislation provided the framework for a Local Impacts Committee to provide input to Seattle about local street impacts. This past year, Seattle formed a Stakeholder Advisory Committee at the request of the Governor. This group will meet this summer to discuss broader project corridor issues such as mitigation. Input from both of these groups will help Seattle make a decision on the city's preferred alternative for the project by October 2006.

What has the project team heard from Seattle neighborhoods?

Seattle neighborhoods on the west end of SR 520 include Portage Bay/Roanoke, North Capitol Hill, Montlake, University District, Laurelhurst, and Madison Park. Eastlake is not within the official project area, but is briefly described due to its proximity to and ongoing

involvement with the project. Exhibit 3-30 shows a map of these neighborhoods.

The **Portage Bay/Roanoke** neighborhood is almost completely residential, a remnant of a larger residential area that was divided by construction of I-5 and SR 520 in the 1950s and 1960s. Roanoke Park, a part of the historic Olmsted Park Plan, lies near I-5 on East Roanoke Street. Residents in this neighborhood are concerned about noise, cut-through traffic, and other neighborhood effects related to their proximity to the corridor. In addition, this community, along with North Capitol Hill, is actively engaged in helping to design a planned cross-freeway lid at 10th and Delmar (for the 6-Lane Alternative).

North Capitol Hill is a densely populated urban neighborhood, described as a cluster of districts that run in a north-south orientation, following the topography of the hill. Similar to Portage Bay/Roanoke, North Capitol Hill residents in this neighborhood are concerned about noise, cut-through traffic, and reconnecting the severed community at the west end of SR 520 using the lid at 10th Avenue and Delmar.

The **Montlake** neighborhood nestles between the waters of Portage Bay and the Washington Park Arboretum. Before SR 520 was built, the neighborhood was almost completely contiguous. Now SR 520 isolates a small, mostly residential portion of Montlake to the north that includes the Seattle Yacht Club and the Museum of History and Industry (MOHAI).

Montlake has an active community council and community center. Residents who were impacted when the original bridge project bisected their neighborhood are concerned that a wider project footprint will further separate their community. People in this area have the same general concerns as those described for the Portage Bay/Roanoke and Capitol Hill neighborhoods. The Montlake neighborhood particularly supports the Pacific Interchange option and opportunities to design the Montlake lid to reconnect the neighborhood.

Madison Park is a residential neighborhood lies between the waters of Union Bay and Lake Washington to the north and east, with the green space of the Broadmoor Golf Course to the west. Madison Park itself, with one of the busiest beaches in Seattle, sits on the shoreline at the eastern end of East Madison Street. Because it is close to the bridge, Madison Park is most concerned about noise impacts and bicycle/pedestrian access and has also expressed concerns about the Pacific Interchange design option.

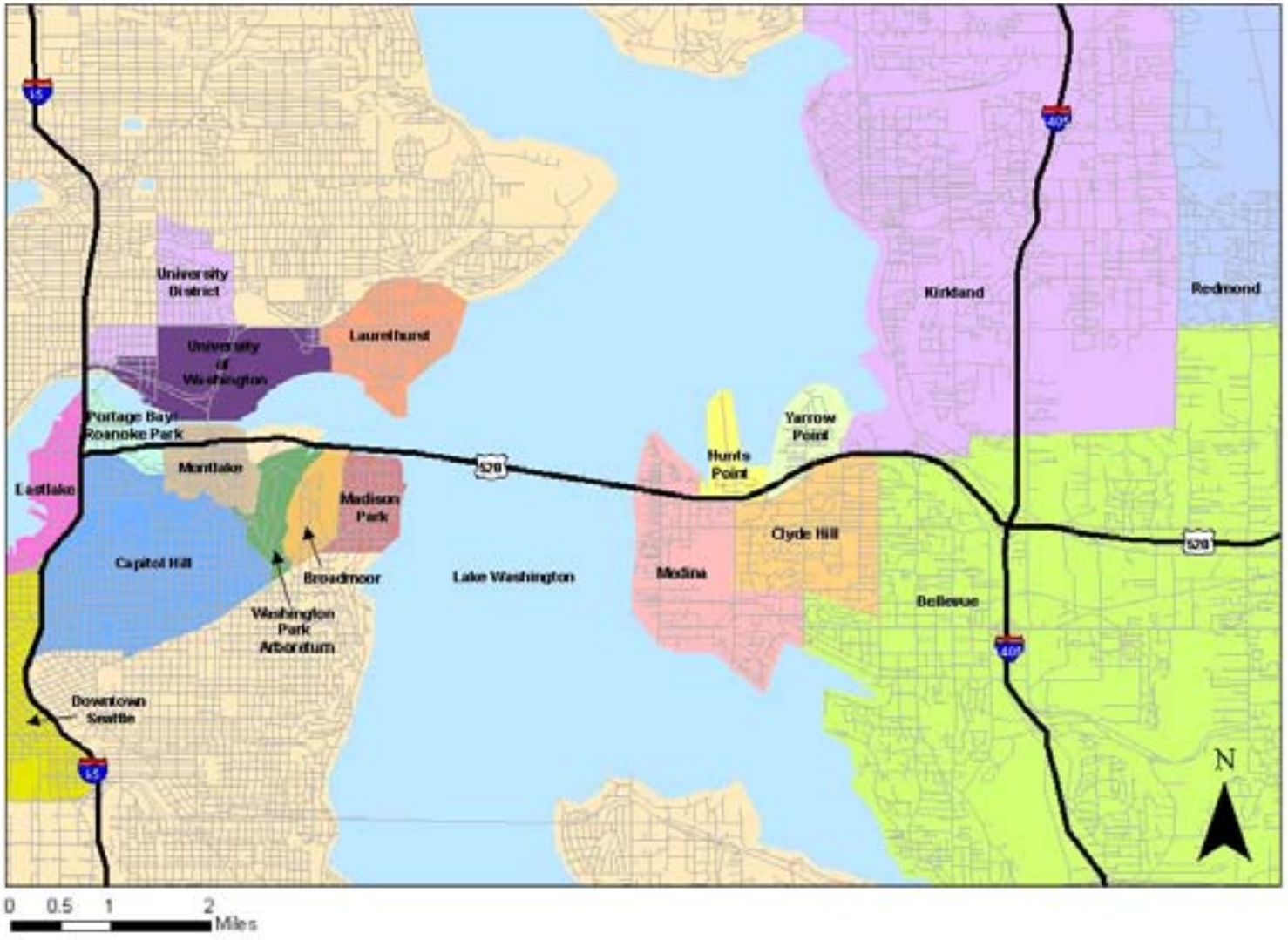


Exhibit 3-30. SR 520 Neighborhoods

Laurelhurst lies along a south-facing hillside on a peninsula that juts into Lake Washington, affording excellent views of the lake and Mount Rainier. Laurelhurst residents must travel south through the congested areas of UW's sports facilities and the medical center, as well as the busy University Village shopping mall, to reach SR 520. When the Montlake Bridge opens to allow boat traffic to pass underneath, traffic in that corridor comes to a halt that lasts a long time. Not surprisingly, the community is concerned about both noise and maintaining or improving access to SR 520.

Densely developed with campus buildings, housing, and businesses to support its large student population, employees, and residents, the **University District** lies north of Portage Bay and west of Union Bay. Montlake Boulevard Northeast fronts the UW's sports complexes and also leads to the University Village shopping center. At the south end of the neighborhood is the UW Medical Center on Northeast Pacific Street. Parallel with Montlake Boulevard Northeast and Northeast Pacific Street, the Burke-Gilman Trail carries bicyclists and pedestrians from throughout the region. In general, traffic flow and travel times are important issues to residents of this area.

Though not officially in the project area, residents of the **Eastlake** neighborhood tend to be concerned about neighborhood traffic and the I-5/SR 520 Interchange (traffic operations and associated noise). The Eastlake community is wedged between Lake Union to the west and I-5 to the east, covering a long, narrow corridor that was separated from the Portage Bay/Roanoke and Capitol Hill neighborhoods when I-5 was built in 1962.

Eastside Jurisdictions Overview

Eastside communities have been actively involved as well, and many support the 6-Lane Alternative. The jurisdictions have agreed to participate in mitigation discussions once a preferred alternative has been selected.

Medina, Hunts Point, Clyde Hill, and Yarrow Point are also concerned with how transit infrastructure will be integrated into the project. When transit stops are rebuilt in conjunction with the project, the project team is considering replacing only one of the two that currently exist (the stop at 92nd that primarily serves Medina and Hunts Point, and the stop at Evergreen Point Road that serves Clyde Hill and Yarrow Point). Studies indicate that the transit stops are mostly used for bus riders needing to transfer to a different route, not by residents in the nearby communities.

The benefits, drawbacks, and costs associated with replacing only one of the two transit stops are being carefully weighed by each jurisdiction.

City of Medina

Medina occupies a peninsula projecting into the central portion of Lake Washington and is the first city a driver encounters traveling east off the Evergreen Point Bridge. The construction of SR 520 in the 1960s split the city in two, separating the north portion from the larger southern portion except for a single arterial bridge over SR 520 on Evergreen Point Road.

Medina supports the 6-Lane Alternative and has agreed to take a closer look at mitigation activities once a preferred alternative has been selected. Medina is concerned about noise, cut-through traffic, reconnecting the neighborhoods bisected by the original bridge project, and other community impacts associated with proximity. Medina is also looking at design opportunities for a new lid proposed at Evergreen Point Road.

Town of Hunts Point

The town of Hunts Point sits east of Medina on a mile-long peninsula extending north into Lake Washington. Like Medina, Hunts Point was split by SR 520's construction, which stranded 14 parcels within the town limits on the south side of the highway.

Hunts Point supports the 6-Lane Alternative, shares the same general concerns as Medina, and is also working with Clyde Hill and Medina to consider design opportunities for the new lid proposed at 84th Avenue Northeast.

City of Clyde Hill

Encompassing nearly a square mile of land on a hilltop that overlooks Lake Washington and Bellevue, Clyde Hill is almost exclusively residential. While concerned with general neighborhood impacts, Clyde Hill is most concerned about noise. The jurisdiction, along with Yarrow Point, is reviewing design opportunities for a new lid at 92nd Avenue Northeast and, as mentioned above, is also involved in designing the lid at 84th Avenue Northeast.

Town of Yarrow Point

Located on the peninsula just east of Hunts Point, Yarrow Point shares a residential character similar to Clyde Hill. Yarrow Point is most concerned about noise impacts, and is working with Clyde Hill to review design opportunities for a new lid at 92nd Avenue Northeast.

City of Bellevue

The fifth largest city in Washington, Bellevue is the financial, retail, and office center of the Eastside and continues to grow. As a key economic

center, Bellevue generates many jobs that require adequate commuting choices and good access from the west side of Lake Washington. The city generally supports additional capacity on SR 520 to address congestion and to help improve access to the South Kirkland Park-and-Ride, which lies just north of SR 520 in Kirkland between Bellevue Way and 108th Avenue Northeast.

Three Bellevue neighborhoods in the SR 520 project area include North Bellevue, Bridle Trails, and Bel-Red/Northup. Just south of SR 520 and framing downtown Bellevue to the north and west is an area composed mostly of mixed single-family and multifamily housing. This area is known as **North Bellevue**. **Bridle Trails** is a neighborhood of single-family homes on large lots, bordered by I-405 on the west and SR 520 on the south. Two-thirds of the area is covered by second-growth timber. The **Bel-Red/Northup** neighborhood, unlike other Eastside project area neighborhoods, is largely commercial, with housing generally transitioning to business redevelopment. A variety of light industrial and commercial businesses line its major arterial streets.

City of Kirkland

One of the oldest cities on the Eastside, Kirkland is primarily a residential community, although its downtown (located north of the project area) is notable for its arts and shopping venues. Kirkland favors the 6-Lane Alternative and, as a primarily residential community, city staff echo the concerns of Lakeview, their neighborhood within the project area. Lakeview residents are primarily interested in improved access to the South Kirkland Park-and-Ride, as well as increased transit service in general.

City of Redmond

Although Redmond is located outside of the project area it has a significant interest in SR 520. The city hosts economic powerhouses (including Microsoft) and is interested in ensuring good commuter access to jobs and commercial areas. Redmond continues to grow in response to the booming high-tech industry, and depends on SR 520 to connect it to Bellevue and Seattle. The city's location north of the highway terminus makes alternatives like I-90 to the south less viable. In addition, Microsoft has proposed a large campus addition that will require transportation improvements. City officials have also consistently advocated for integrating HCT options into the SR 520 replacement alternative.

Tribes

The SR 520 Project has been working with the same five federally-recognized tribes as the Viaduct Project – the Muckleshoot, Suquamish,

Tulalip, Snoqualmie, and Yakama – as well as the Duwamish Tribe, which is recognized by the state and working on federal recognition. The project is within the Usual and Accustomed Areas of both the Muckleshoot Tribe and Yakama Tribe. All the Tribes are interested in cultural resources within the project area. The Muckleshoot and Snoqualmie, as well as the Duwamish Tribe, have identified Foster Island as an important cultural resource and have told WSDOT that it was historically used as a burial area.

Interests Groups and Institutions

The Washington Park Arboretum, University of Washington and bicycle/pedestrian advocates have been active participants in project activities.

Washington Park Arboretum (Arboretum)
The Arboretum is a 230-acre urban green space on the shores of Lake Washington just south of the UW. This beautiful park boasts internationally recognized woody plant collections and is a popular recreational and cultural destination. Building the original SR 520 Bridge pre-dated many of the environmental permitting requirements that must be met today, which may be why the original bridge alignment was allowed to bisect the Arboretum. Many people linked to the Arboretum would like to remove the SR 520 Bridge altogether. Arboretum supporters oppose any project plans that would further impact the park, especially the design option for a new Pacific Street Interchange.

Many entities are involved in Arboretum management:

- The UW Botanic Gardens manages the plant collections.
- The City of Seattle owns most of the land and buildings.
- The Seattle Department of Parks and Recreation manages park functions.
- The Arboretum Foundation helps with fundraising and support, providing membership and volunteering opportunities, as well as raising money to implement the Master Plan to renovate the park over the next 20 years.

University of Washington
The UW is concerned with (1) traffic, (2) cumulative construction impacts, and (3) how SR 520 might impact future campus development. The recently proposed Pacific Street Interchange would build a new interchange ramp crossing Union Bay on a bridge structure and crossing the stadium parking areas, meeting the Pacific Avenue/Montlake Boulevard Intersection in front of Husky Stadium. The UW is concerned about the use available land for transportation purposes. To date the

University opposes the Pacific Street Iinterchange and supports keeping the existing Montlake interchange.

In addition to the SR 520 Project, the UW plans to renovate its football stadium and expand the nearby medical center, while Sound Transit plans to build a light rail station to serve the area. UW officials have concerns about how these projects could be coordinated to produce the optimum configuration, limit impacts, reduce duplication of costly closures, and decrease construction-related traffic effects.

Bicycle and Pedestrian Groups

The bicycle and pedestrian community groups like the Bicycle Alliance of Washington, Cascade Bicycle Club, and Feet First, support including a bicycle/pedestrian path along the corridor with connections to local and regional trail systems, such as at Madison Park.

What alternatives were considered and rejected – and why?

WSDOT identified the current SR 520 project alternatives through a multi-year process that included extensive public outreach, technical study, and screening based on a series of transportation and environmental criteria and cost effectiveness. The Trans-Lake Washington Study began in 1998 and the project continued through EIS scoping and project development stages. These activities produced and evaluated conceptual alternatives, and progressively identified the alternatives most likely to meet the project's purpose and need. Exhibit 3-31 shows the screening process in greater detail.

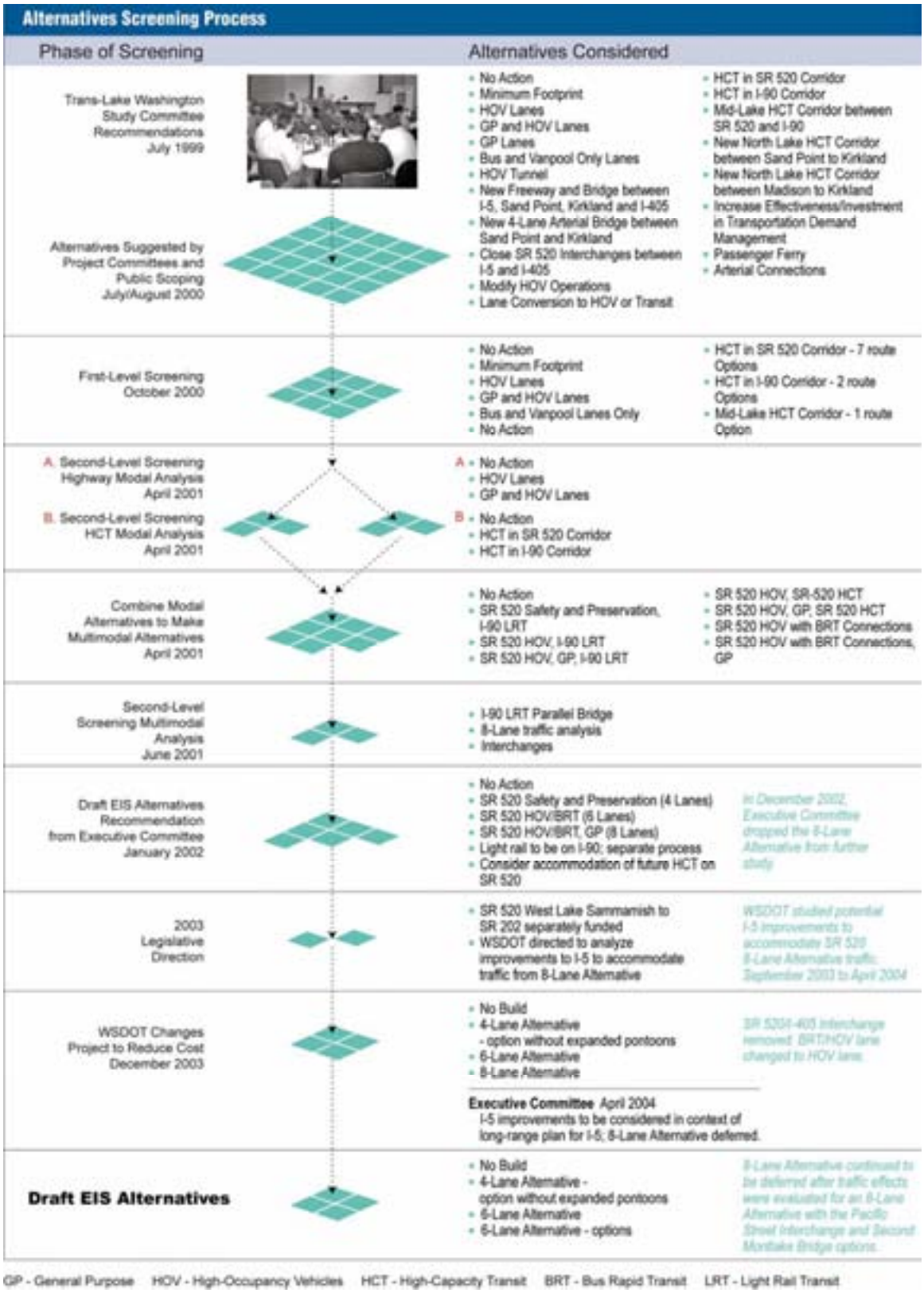
The Trans-Lake Washington Study Technical Report (November 1999) and the Trans-Lake Washington Project Multi-Modal Alternatives Analysis Report (June 1, 2001) provide additional details on the definitions of the alternatives that were considered, the evaluation results, and then the public process used to select alternatives to move forward.

What did the Trans-Lake Washington Study committee recommend?

The Trans-Lake committee-based study considered conceptual solutions for improving mobility across and around Lake Washington. The review considered a wide range of suggestions for improving transportation in several existing corridors, including SR 520, I-90, SR 522, as well as potential new corridors crossing the lake. At the conclusion of the Trans-Lake study, the committee recommended the following to be carried forward in an EIS for the SR 520 corridor:

- Add one HOV lane in each direction (6-Lane Alternative)
- Add one HOV lane in each direction and high capacity transit (6-Lane Alternative accommodating HCT)
- Add an HOV lane in each direction and one general purpose lane in each direction (8-Lane Alternative)
- Include a minimum footprint (four lanes with minimum shoulders)
- Include a No Build Alternative

Exhibit 3-31. Trans-Lake Screening Process



Major alternatives removed from further consideration included new routes for a bridge or expanded freeway to the north of SR 520 (near Juanita), as well as alternatives that would have expanded SR 520 beyond an eight-lane configuration. The primary reasons for removing these alternatives from consideration were negative effects to connecting facilities, the built and natural environment, and cost.

Trans-Lake Washington Project Multi-Modal Alternatives Analysis

Analysis of the Trans-Lake alternatives began in 2000 with the notice of intent to prepare an EIS. This effort produced the project's purpose and need, defined screening and evaluation criteria, and included two levels for screening potential alternatives. In both levels of screening, the review included three categories of screening criteria: transportation effectiveness, environmental impacts, and cost.

First level screening (October 2000) focused on modal alternatives in three tracks: (1) highway and HOV, (2) high-capacity transit, and (3) TDM, TSM and land use. The highway alternatives moved forward for additional study included SR 520 with HOV lanes and SR 520 with added GP and HOV lanes. The high capacity transit alternatives included investments in both the I-90 and SR 520 corridors. HCT alternatives included three combinations: 1) HCT in the I-90 corridor and BRT in the SR 520 corridor; 2) HCT in the SR 520 corridor and BRT in the I-90 corridor; and 3) BRT in the SR 520 and I-90 corridors. An alternative with HCT in the I-90 corridor and BRT in the SR 520 corridor was advanced to the next level of screening.

Second level screening (April 2001) focused on eight integrated multi-modal alternatives that combined the best of the modal options defined through the level one screening:

- No Action
- Alternative 2: SR 520 Safety and Preservation with I-90 LRT
- Alternative 3: SR 520 HOV with I-90 LRT
- Alternative 4: SR 520 HOV and GP with I-90 LRT
- Alternative 5: SR 520 HOV and HCT
- Alternative 6: SR 520 HOV and GP and HCT
- Alternative 7: SR 520 HOV with BRT connections
- Alternative 8: SR 520 HOV with BRT connections and GP

The Trans-Lake Executive Committee continued to consider alternatives from June 2001 through January 2002. Then, in an initial recommendation in January 2002, the Committee identified the following as most promising:

- Light rail on I-90
- SR 520 Safety and Preservation (4 lanes)
- SR 520 HOV/BRT (6 lanes)
- SR 520 GP/HOV/BRT (8 lanes)

The alternatives removed from further consideration were primarily HCT on SR 520 (Alternatives 5 and 6 listed above). The project continued to carry alternatives for improved transit through HOV lanes and direct access connections, but HCT or BRT options that required exclusive right-of-way on SR 520 were not selected for further study. Currently, the project is being designed so that future HCT is not precluded and the pontoon will have enough floatation to support this weight.

The Executive Committee identified I-90 as the most promising corridor for initial cross-lake HCT development. The primary reasons for removing HCT from consideration in the current SR 520 project were the higher costs and environmental impacts for developing light rail in the project corridor, compared to the existing investments in the I-90 corridor. The I-90 corridor was designed with the anticipation of a future HCT system. The corridor also provides better HCT system integration with Central Link in the Downtown Seattle Transit Tunnel, and higher ridership for the I-90 corridor route. The Trans-Lake Washington work in 2001 and 2002 drove modifications to Sound Transit's adopted long-range plans by providing compatibility between Sound Transit's plan and the Trans-Lake Study. Both reports indicate that the I-90 corridor is the highest priority for cross-lake HCT. The reports also suggest that the SR 520 corridor may eventually have HCT, and that this should be considered in the SR 520 Project's development.

Was the 8-Lane Alternative reconsidered after 2002?

In 2002, the project team's planning-level evaluation for the 8-Lane Alternative (which assumed no toll on SR 520) indicated that the volume of traffic from eight lanes on SR 520 would create severe backups on an already highly congested I-5. To reduce these backups, the 8-Lane Alternative would require that one additional lane be built in each direction on the I-5 corridor through downtown Seattle, from SR 520 to at least as far south as the Corson/Michigan interchange. Because of the effects on I-5, the Executive Committee recommended dropping the 8-Lane Alternative from consideration.

In 2003, the state legislature, in conjunction with providing funding for the SR 520 project, asked WSDOT to take a closer look at the 8-Lane Alternative to determine what modifications would be required to I-5 to account for effects from the increased traffic flow from an eight-lane SR 520.

Prior to the re-evaluation of the 8-Lane Alternative by the project team, the Trans-Lake project was renamed the SR 520 Bridge Replacement and HOV Project. During this time, the project limits were redefined, and a decision was made to assume that tolls would be required for crossing the bridge under all replacement alternatives.

The project team incorporated these changes during a second assessment of the 8-Lane Alternative effects. Even with a toll assumed on the Evergreen Point Bridge, the assessment showed that additional capacity—at least one lane in each direction—would still be needed on I-5 from SR 520 to I-90. The project team developed three options for adding the two additional lanes on I-5: a tunnel option, an aerial option, and a frontage road option. Of those choices, the frontage road option appeared preferable to the others. However, it would involve extensive and extremely costly improvements to I-5 because of the right of way needed. For example, the frontage road would require re-grading of the entire hillside east of I-5 through Capitol Hill and downtown Seattle, which would displace a number of multi-family residential buildings. The other alternative would be to raise the grade of I-5 itself, which would disrupt traffic for years during construction. A seven-lane off-ramp at Madison Street would be another consequence of the improvements, and would create severe problems with traffic operations in this area.

On the basis of these conclusions, the Executive Committee acknowledged the system constraints and recommended that I-5 capacity be examined as part of an I-5 corridor study for which the legislature allocated funding in the 2003 Nickel Package. Based on the effects to I-5 and the likelihood of similar effects on I-405 and the I-405/SR 520 interchange, no further analysis was performed. It was clear that significant additional capacity would be required at the SR 520/I-405 interchange to handle the resulting increased traffic flow.

What is the current status of the 8-lane alternative?

WSDOT's development of options for the 6-Lane Alternative produced renewed interest in providing eight lanes across Lake Washington, for a portion of the corridor from east of the proposed Pacific Street interchange to I-405.

Traffic analysis of this concept indicated that during the 2030 morning and afternoon peak periods, the 8-Lane Alternative would not fully use available capacity across the Evergreen Point Bridge. This would happen for two reasons: (1) congestion outside of the project limits would block traffic wanting to reach the Evergreen Point Bridge; and (2) tolling acts to manage demand.

The team's findings of the 8-Lane Alternative illustrated that with more trips crossing Lake Washington, more traffic would be introduced into the area around the University of Washington. To accommodate this increase, additional general purpose lane capacity would be required on the local arterials in the University area. Increased westbound traffic crossing the Evergreen Point Bridge would continue to be caught in SR 520 queues that originate from the severe congestion on I-5. Additional eastbound traffic destined for areas north or south on I-405 would add to the congestion already present on I-405 and SR 520. On the basis of the negative findings of these studies, the 8-Lane Alternative was not addressed in the detailed discipline studies for all the environmental elements considered in the Draft EIS.

Because of the significant congestion and traffic operations problems encountered at both ends of the corridor on SR 520 as well as the arterial network, and the reconfiguration required of I-5 and I-405, WSDOT did not complete an assessment of the additional improvements needed to accommodate the added traffic associated with this alternative. As a result, no opinion of cost of the 8-Lane Alternative has been developed to the same level as the 4-Lane and 6-Lane Alternative, as reported in the 2005 CEVP Final Report.

Has the project team considered submerged tubes or tunnels?

Most recently, in the fall of 2005, a group of community members approached the project team with a concept idea for building a tunnel between I-5 and the SR 520 floating bridge. WSDOT worked with an international tunnel engineering expert to evaluate this idea. Analysis indicated that after construction, noise levels would decrease and visual quality would increase in adjacent communities. However, overall environmental effects would increase due to dredging in the Arboretum and other sensitive areas. The tunnel concept would be challenging to implement due to the complexities of building intersections underwater, the need to stabilize the soil in Union Bay, and the difficulty of constructing multiple different types of tunnels. In addition, the concept would cost billions of dollars more than either of the current alternatives being considered. For these reasons, WSDOT has eliminated this concept from consideration.

What reference documents are available?

Trans-Lake Washington Study: Overview & Recommendations	October 1999
Trans-Lake Washington Study: Technical Report	November 1999
SR 520 Evergreen Point Bridge and Approach Structures; Storm and Seismic Risk Statement	January 2002
2002 CEVP Workshop Final Report and Backup Documentation	April 2002
Trans-Lake Washington Project Multimodal Alternatives Evaluation Report	April 2002
2003 CEVP Workshop Final Report and Backup Documentation	May 2003
SR 520 Bridge Replacement and HOV Project, Project Management Plan	January 2004
2004 CEVP Workshop Final Report and Backup Documentation	April 2004
SR 520 Toll Feasibility Study	April 2004
Guidebook for Design-Build Highway Project Development	June 2004
SR 520 Bridge Replacement and HOV Project, 4-Lane Alternative, Design Alternative for DEIS Appendices (plans)	March 2005
SR 520 Bridge Replacement and HOV Project, 6-Lane Alternative, Design Alternative for DEIS Appendices (plans)	March 2005
2005 CEVP Workshop Final Report and Backup Documentation	June 2005
SR 520 Bridge Replacement and HOV Project, Draft Environmental Mitigation Plan	June 2006
SR 520 Construction Staging and Techniques Memorandum (for the 6-Lane Base Alternative)	July 2005
SR 520 Bridge Replacement and HOV Project, 6-Lane Alternative Options, Design Alternative for DEIS Appendices (plans)	December 2005
SR 520 Construction Staging and Techniques Memorandum for the 6-Lane Options Alternatives	December 2005
2006 CEVP Workshop Final Report and Backup Documentation	**Anticipated** August 2006
SR 520 Bridge Replacement and HOV Project, Draft EIS	**Anticipated** August 2006
SR 520 Bridge Replacement and HOV Project, Draft EIS, Appendices	**Anticipated** August 2006